# The PHOTOFACT® Servicer

SET 557 ★ *Published for all users of Howard W. Sams' Photofact Folders* ★ DEC. 1961

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400-10-TS

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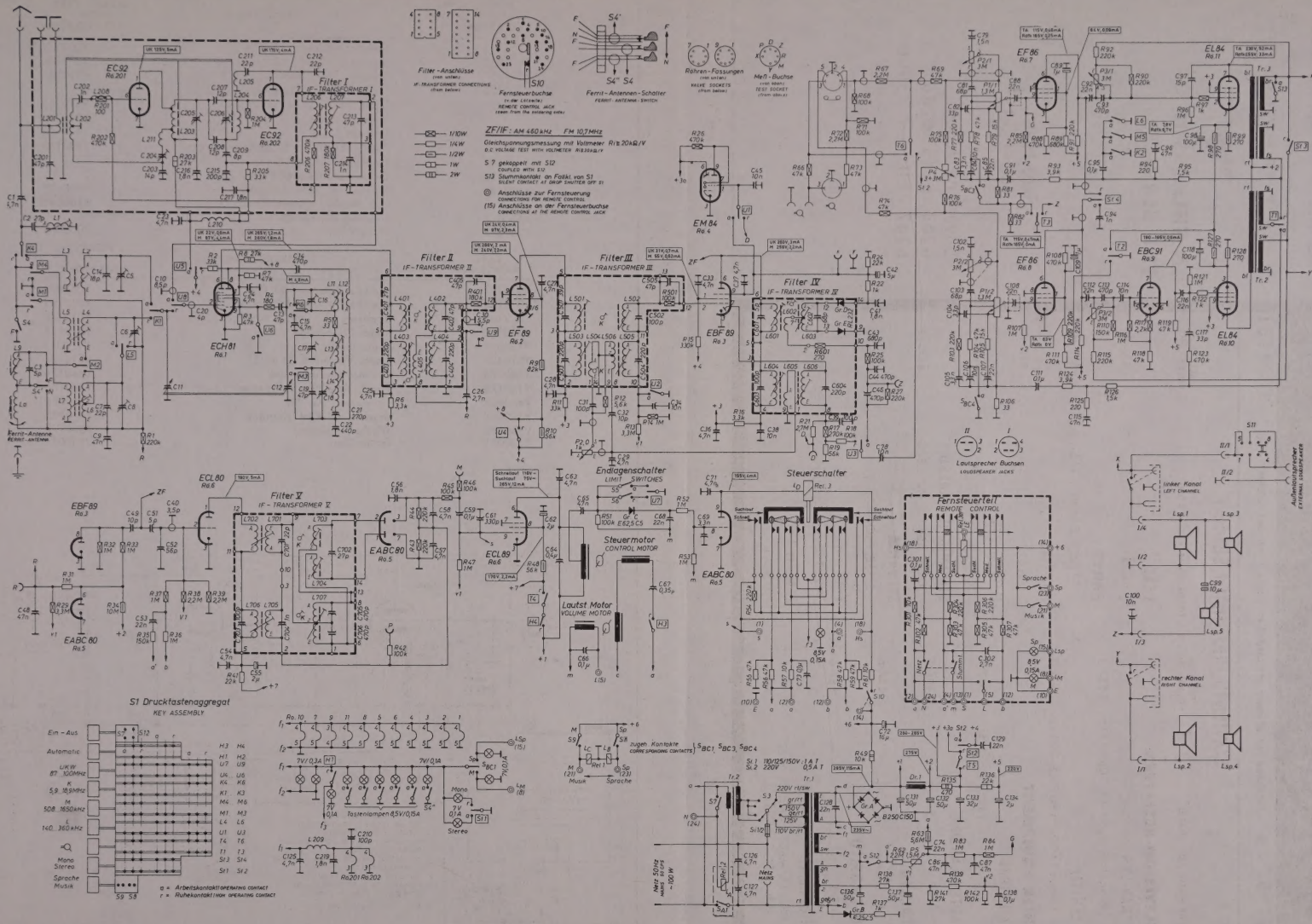
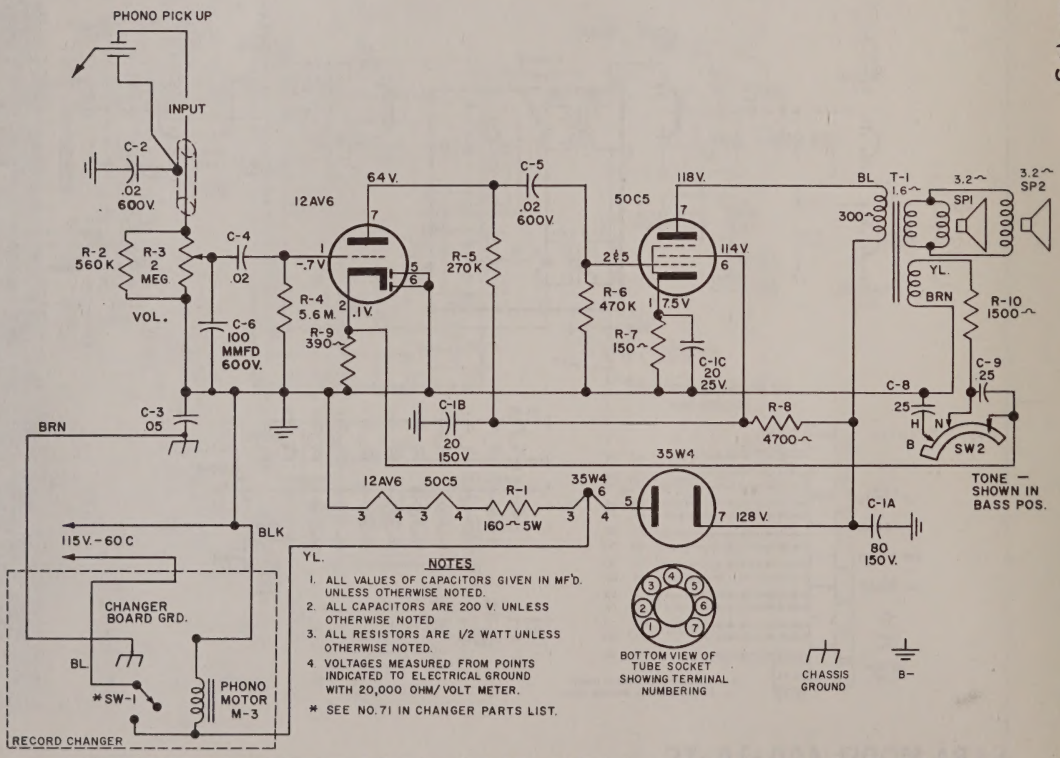



SABA MODEL 400-10-TS

Schematic Diagram Courtesy of Saba: Importer A. E. Dufenhorst Co.

| MODEL 6244 CREAM & BROWN LEATHERETTE | DESCRIPTION | MODEL 6245 BROWN LEATHERETTE |
|---|---|---|
| Y012271 | Spindle Adaptor, 45 RPM | Y012271 |
| Y011856 | Speaker, 6" PM, 3.2 Ω v. c. | Y011856 |
| Y011857 | Speaker, 5¼" PM, 3.2 Ω v. c. | Y011857 |
| Y310235 | Knob, Tone & Volume (2) | |
| | Knob, Tone | Y310265 |
| | Knob, Volume | Y310264 |
| Y440167 | Cabinet & Lid | Y440169 |
| Y440166 | Panel, Amplifier & Speaker Cover | Y440168 |
| Y490104 | Escutcheon Drive Pins (4) | |
| Y490123 | Escutcheon, Control Knobs | |
| Y490105 | Bracket, 45 RPM Adaptor | Y490105 |
| | Cup Washer, Control Knobs (2) | Y100845 |
| Y580041 | Finishing Washer (3) | |
| Y350072 | Grille Cloth | Y350073 |

| MODEL 6246 MAHOGANY | DESCRIPTION | MODEL 6247 LIMED OAK |
|---|---|---|
| Y012271 | Spindle Adaptor, 45 RPM | Y012271 |
| Y012148 | Speaker, 8" PM, 3.2 Ω v. c. | Y012148 |
| Y012149 | Speaker, 5¼" PM, 3.2 Ω v. c. | Y012149 |
| Y310262 | Logo, "Hi-Fidelity" | Y310262 |
| Y120017 | Logo Plate | Y120017 |
| Y310127 | Knob, Volume & Tone (2) | Y310127 |
| Y440173 | Cabinet (Includes lid) | Y440174 |
| Y440175 | Panel, Amplifier & Speaker Cover | Y440176 |
| Y460094 | Connector, AC (3) | Y460094 |
| Y490105 | Bracket, 45 RPM Adaptor | Y490105 |
| Y580172 | Washer, Finishing | Y580172 |
| Y350075 | Grille Cloth | Y350075 |




SILVERTONE MODELS 6244, 6245, 6246, 6247 ( CH. 567.33006 )

Schematic Diagram Courtesy of Sears, Roebuck & Company

PHOTOFACT® Folder

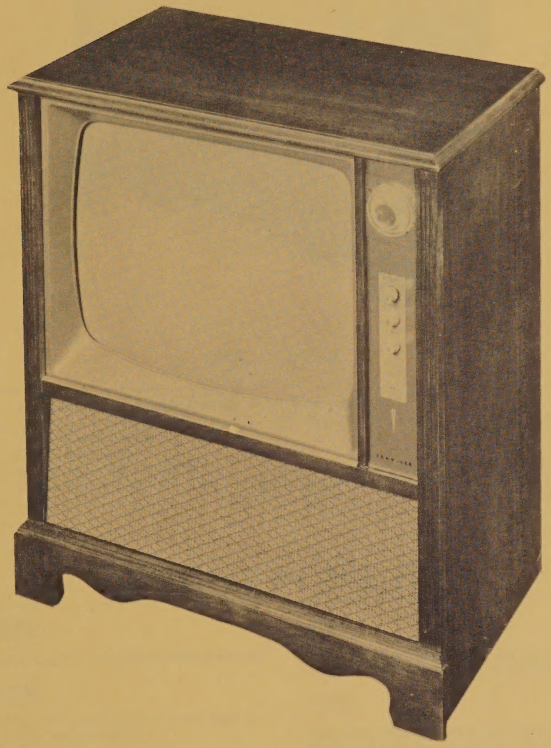
**TRAV-LER MODELS 23K6180F, M, W (Ch. 1062-151)**

## IMPORTANT FILING NOTICE

The TV Folder for this envelope will be found among the first folders in this complete Set of folders.

Merely insert the corresponding folder on this model in this envelope to retain proper filing and indexing order.

TRAV-LER MODELS 23K6180F, M, W (Ch. 1062-151)



MODEL 23K6180M

TRAV-LER MODELS 23K6180F, M, W (Ch. 1062-151)

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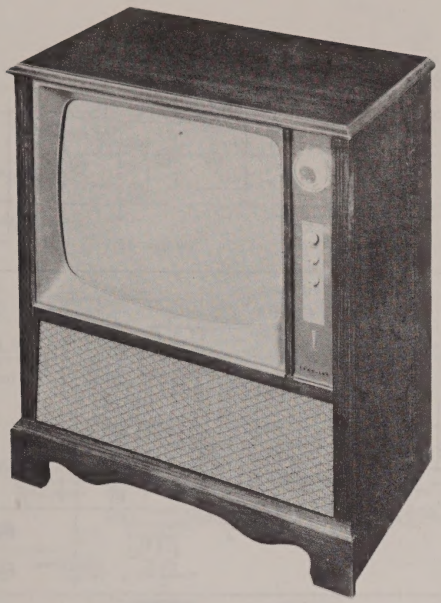
DATE 12-61 SET 557 FOLDER 1

SET 557 FOLDER 1

PHOTOFACT® Folder

# TRAV-LER MODELS 23K6180F, M, W (Ch. 1062-151)

TRAV-LER MODELS 23K6180F, M, W (Ch. 1062-151)



MODEL 23K6180M

| | |
|---|---|
| TRADE NAME | Trav-Ler Models 23K6180F, M, W (Chassis 1062-151). |
| MANUFACTURER | Trav-Ler Radio & Television Corp., 571 West Jackson Blvd., Chicago 6, Illinois |
| TYPE SET | Television Receiver |
| TUBES | VHF - Seventeen |
| POWER SUPPLY | 110-120 Volts AC, 60 Cycle RATING 190 Watts, 1.75 Amp. @ 117 Volts AC |
| TUNING RANGE | Channels 2 thru 13 VHF, Video IF 45.75MC, Sound IF 41.25MC (Intercarrier) |

## SERVICING IN THE FIELD

PICTURE TUBE REMOVAL

It is necessary to remove chassis for picture tube removal.

SAFETY GLASS REMOVAL

Remove 3 screws holding the trim strip at the top edge of the safety glass. Tilt glass out and remove.

FUSE

A 3/4 Amp. fuse is used for low voltage supply protection. (For location, see "Tube Placement Chart".)

A fuse wire is used for filament protection. (For location, see M2 in photo "Chassis - Bottom View".)

TUNER OSCILLATOR ADJUSTMENT

To touch up the VHF Oscillator, remove Channel Selector and Fine Tuning knobs.

AGC

The AGC may be varied by means of an AGC Control. (For location, see "Tube Placement Chart".)

FOCUS

The focus may be varied by connecting the lead from pin 4 of the picture tube to various voltage points. (For location, see photo "Cabinet - Rear View".)

HORIZONTAL OSCILLATOR FIELD ADJUSTMENT

The Horizontal Frequency Slug is used for the Horizontal Hold. (For location, see "Tube Placement Chart".)

CENTERING

Centering is accomplished by 2 magnetic rings, located behind the yoke, on the neck of the picture tube.

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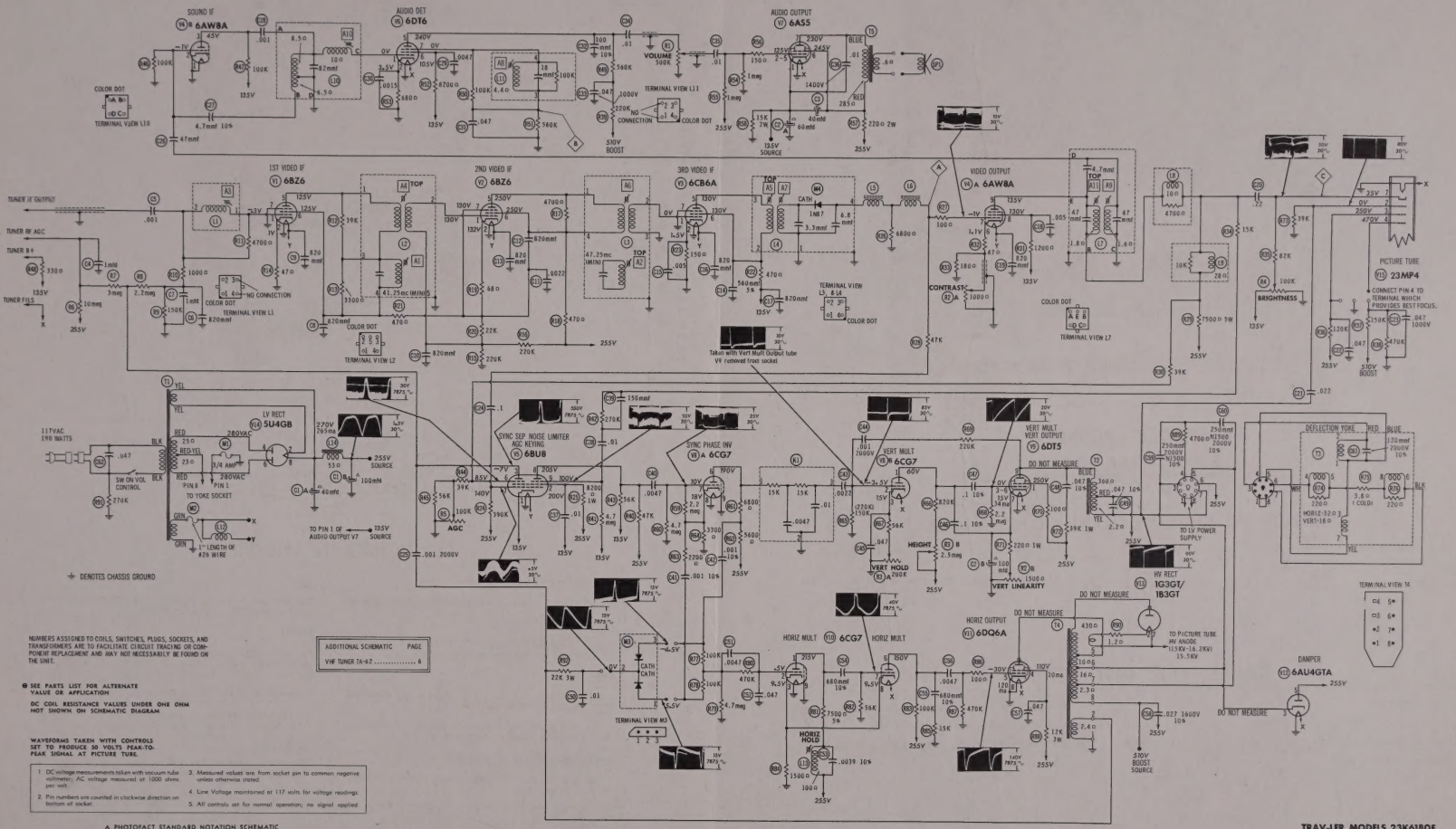
SET 557 FOLDER 1


SOUND IF
V4 6AW8A
AUDIO DET
V5 6DT6
AUDIO OUTPUT
V7 6AS5
1ST VIDEO IF
V1 6BZ6
2ND VIDEO IF
V2 6BZ6
3RD VIDEO IF
V3 6CB6A
VIDEO OUTPUT
V4 A 6AW8A
TUNER IF OUTPUT
TUNER RF AGC
TUNER B+
TUNER FILS
COLOR DOT
TERMINAL VIEW L10
TERMINAL VIEW L11
TERMINAL VIEW L1
TERMINAL VIEW L2
TERMINAL VIEW L7
NO CONNECTION
VOLUME 500K
510V BOOST
255V SOURCE
CONTRAST
BRIGHTNESS
PICTURE TUBE
V15 23MP4
CONNECT PIN 4 TO TERMINAL WHICH PROVIDES BEST FOCUS.
Taken with Vert Mult Output tube V9 removed from socket
117VAC 190 WATTS
LV RECT
V12 5U4GB
280VAC
SW ON VOL CONTROL
TO YOKE SOCKET
TO PIN 1 OF AUDIO OUTPUT V7
13.5V SOURCE
1" LENGTH OF #26 WIRE
SYNC SEP NOISE LIMITER AGC KEYING
V5 6BU8
SYNC PHASE INV
V8 A 6CG7
VERT MULT
V9 6CG7
VERT MULT VERT OUTPUT
V10 6DT5
DO NOT MEASURE
HEIGHT
VERT HOLD
VERT LINEARITY
TO LV POWER SUPPLY
HV RECT
V13 1G3GT/ 1B3GT
TO PICTURE TUBE HV ANODE (15KV-16.2KV)
15.5KV
DEFLECTION YOKE
HORIZ 320 Ω
VERT 18 Ω
HORIZ MULT
V10 6CG7
HORIZ MULT
HORIZ OUTPUT
V11 6DQ6A
HORIZ HOLD
DAMPER
V16 6AU4GTA
510V BOOST SOURCE
TERMINAL VIEW M3
TERMINAL VIEW T4
DENOTES CHASSIS GROUND
ADDITIONAL SCHEMATIC PAGE
VHF TUNER TA-62 ..... 6
NUMBERS ASSIGNED TO COILS, SWITCHES, PLUGS, SOCKETS, AND TRANSFORMERS ARE TO FACILITATE CIRCUIT TRACING OR COMPONENT REPLACEMENT AND MAY NOT NECESSARILY BE FOUND ON THE UNIT.
SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION
DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM
WAVEFORMS TAKEN WITH CONTROLS SET TO PRODUCE 50 VOLTS PEAK-TO-PEAK SIGNAL AT PICTURE TUBE.
1. DC voltage measurements taken with vacuum tube voltmeter; AC voltage measured at 1000 ohms per volt.
2. Pin numbers are counted in clockwise direction on bottom of socket.
3. Measured values are from socket pin to common negative unless otherwise stated.
4. Line Voltage maintained at 117 volts for voltage readings.
5. All controls set for normal operation; no signal applied.
A PHOTOFACT STANDARD NOTATION SCHEMATIC
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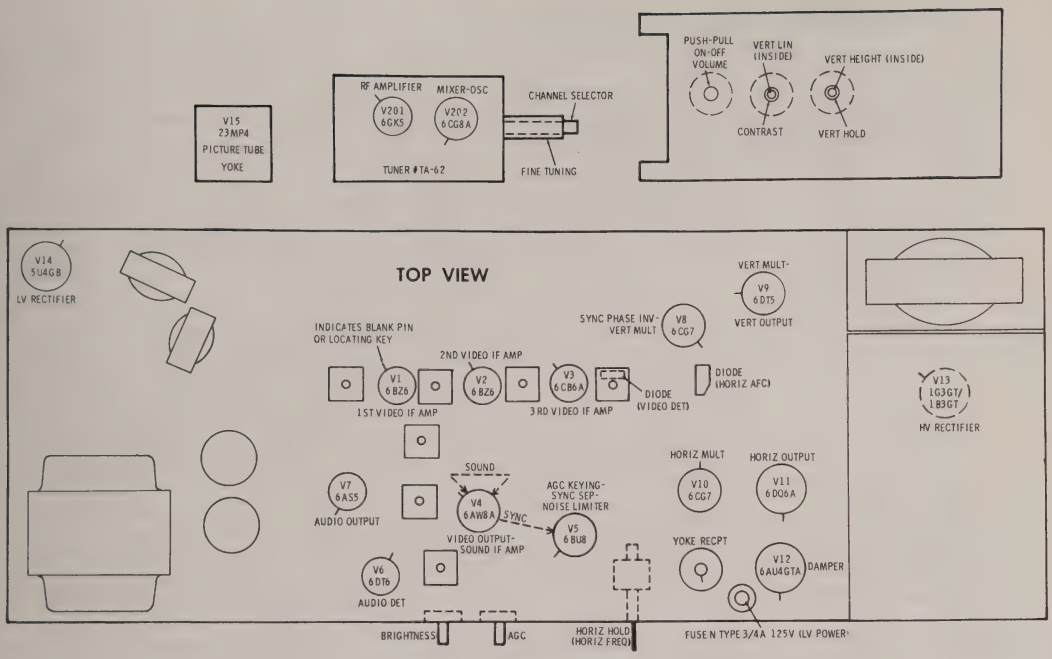
TRAV-LER MODELS 23K6180F, M, W (Ch. 1062-151)

# TUBE PLACEMENT CHART




# TUBE FAILURE CHECK CHART

The following chart lists tubes whose failures are most likely to produce indicated symptoms. Refer to tube placement chart for location and type of tube.

POWER SUPPLY FAILURE
No raster, no sound Fuse Wire (Fil.), Fuse (LV Power), V14

SWEEP FAILURE
No raster, has sound V10, V11, V12, V13, V15
No vertical deflection V8, V9
Poor vert. linearity or foldover V8, V9
Poor horiz. linearity or foldover V10, V11, V12
Narrow picture V10, V11, V12, V14
Vert. off freq. V8, V9
Horiz. off freq. Diode (Horiz.AFC), V10

LOSS OF PICTURE OR SOUND
No pic, no sound, has raster V1, V2, V3, Diode (Video Det.), V4, V7
No pic, no sound, has snow V201, V202, V1
No pic, has sound, has raster V4, V15
Has pic, no sound V4, V6, V7
Overloaded picture V5

SYNC FAILURE
No vert. sync V5, V8
No horiz. sync V5, V8
No vert. or horiz. sync V5, V8

# ALIGNMENT INSTRUCTIONS

PRE-ALIGNMENT INSTRUCTIONS

The High Voltage lead should be securely taped and kept away from the chassis.
Allow a 20 minute warm-up period for the receiver and test equipment.
Suggested Alignment Tools: GENERAL CEMENT #8282, 8606, 8606L, 9295
WALSCO #2526, 2543, 2544, 2545

VIDEO IF ALIGNMENT

Set Contrast fully clockwise.
Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.
The generator output lead should be terminated with its characteristic impedance, usually 50 ohms.
Use only enough sweep generator output to provide a usable pattern on scope.

| | DUMMY ANTENNA | SWEEP GENERATOR COUPLING | SWEEP GENERATOR FREQUENCY | MARKER GENERATOR FREQUENCY | CHANNEL | CONNECT SCOPE | ADJUST | REMARKS |
|---|---|---|---|---|---|---|---|---|
| 1. | Direct | Place a thin insulated metal strip between the Mixer-Osc. tube (V202), and tube shield. Connect the high side of sweep generator to the metal strip. Low side to chassis. | 44MC (10MC Swp) | 41.25MC | Any non-interfering channel | Vert. Amp. thru 47K to point (A). Low side to chassis. (Across Video Det. load) | A1 | Adjust to place marker in 41.25MC trap notch. (See Fig. 1). |
| 2. | " | " | " | 47.25MC | " | " | A2 | Adjust to place marker in other trap notch. |
| 3. | " | " | " | 42.75MC<br>45.75MC | " | " | Mixer Plate Coil & A3 thru A7 | Adjust for maximum gain and symmetry of response similar to Fig. 1 with markers as shown. Adjust Mixer Plate Coil and A3 for maximum gain. A4 and A5 to shape high frequency side of response curve. A6 and A7 is adjusted to shape low frequency side. |

SOUND IF ALIGNMENT

Connect an output meter across speaker voice coil.
Connect the DC probe of the VTVM to point (B). Common to chassis. Tune in a strong air signal and adjust A8 for maximum output. If two peaks occur during this adjustment, use the one resulting in the highest reading on the VTVM.
Reduce the signal strength by disconnecting the antenna. Adjust A9 and A10 for maximum undistorted sound. Further reduce the signal by moving the antenna lead further away. Retouch A9 and A10 for maximum undistorted sound. Repeat entire procedure if necessary.

4.5MC TRAP ALIGNMENT

| | DUMMY ANTENNA | SIGNAL GENERATOR COUPLING | SIGNAL GENERATOR FREQUENCY | CHANNEL | CONNECT VTVM | ADJUST | REMARKS |
|---|---|---|---|---|---|---|---|
| 4. | .05mfd | High side to point (A). Low side to chassis. | 4.5MC (Unmod) | Any non-interfering channel | AC probe to point (C). Common to chassis. (Use 0-10VAC scale). | All | Adjust for MINIMUM deflection. |

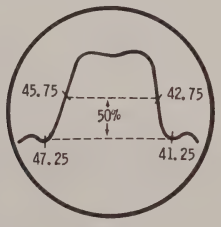
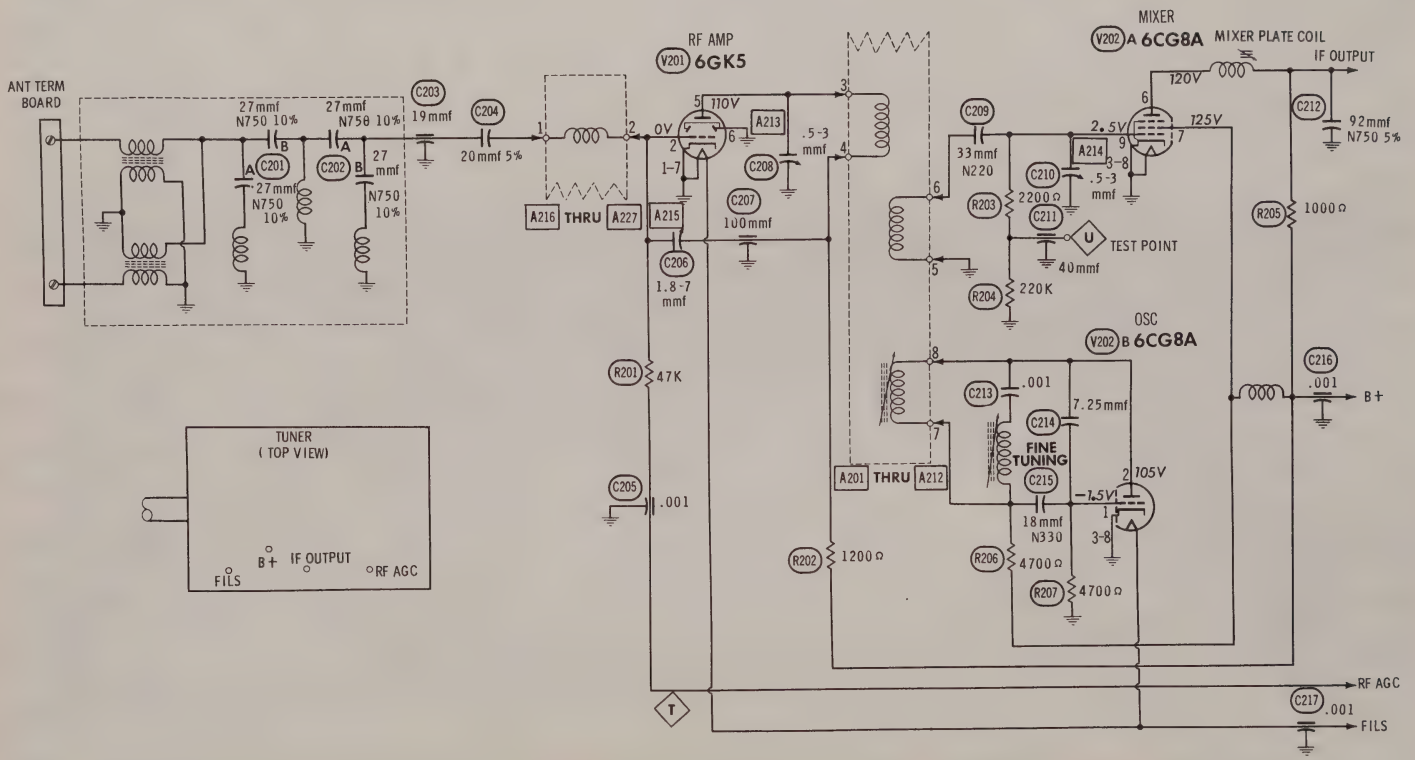


FIG 1

CHASSIS BOTTOM VIEW - RESISTOR, INDUCTOR IDENT.




A PHOTOFACT STANDARD NOTATION SCHEMATIC
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# TUNER TA-62

# TUNER ALIGNMENT INSTRUCTIONS

PRE-ALIGNMENT INSTRUCTIONS

The High Voltage lead should be securely taped and kept away from the chassis.
Allow a 20 minute warm-up period for the receiver and test equipment.
Suggested Alignment Tools: A201 thru A212 ... GENERAL CEMENT #5009, 8195, 8274, 8275, 8728, 8987
WALSCO # 2531
A213 thru A215 .... GENERAL CEMENT #5000, 5003, 8276, 8290
WALSCO #2512, 2525

VHF OSCILLATOR ALIGNMENT

Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.
The generator output lead should be terminated with its characteristic impedance, usually 50 ohms.
Set the Fine Tuning to the center of its range.
Use only enough sweep generator output to provide a usable pattern on scope.
Use 10MC sweep unless otherwise noted.
Connect variable bias to IF AGC line. Adjust bias to obtain response curve which shows no indication of overloading.

| | DUMMY ANTENNA | SWEEP GENERATOR COUPLING | SWEEP GENERATOR FREQUENCY | MARKER GENERATOR FREQUENCY | CHANNEL | CONNECT SCOPE | ADJUST | REMARKS |
|---|---|---|---|---|---|---|---|---|
| 1. | Two 120Ω Carbon Resistors | Across antenna terminals with 120Ω in each lead. | 213MC | 211.25MC<br>215.75MC | 13 | Vert. Amp. thru 47K across Video Det. load. | A201 | Adjust to place sound marker in trap notch as in Fig. 201. Video marker should fall at 50%. |
| | | | 207MC | 205.25MC<br>209.75MC | 12 | | A202 | |
| | | | 201MC | 199.25MC<br>203.75MC | 11 | | A203 | |
| | | | 195MC | 193.25MC<br>197.75MC | 10 | | A204 | |
| | | | 189MC | 187.25MC<br>191.75MC | 9 | | A205 | |
| | | | 183MC | 181.25MC<br>185.75MC | 8 | | A206 | |
| | | | 177MC | 175.25MC<br>179.75MC | 7 | | A207 | |
| | | | 85MC | 83.25MC<br>87.75MC | 6 | | A208 | |
| | | | 79MC | 77.25MC<br>81.75MC | 5 | | A209 | |
| | | | 69MC | 67.25MC<br>71.75MC | 4 | | A210 | |
| | | | 63MC | 61.25MC<br>65.75MC | 3 | | A211 | |
| | | | 57MC | 55.25MC<br>59.75MC | 2 | | A212 | |

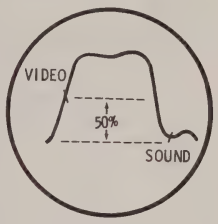


FIG. 201

VHF RF AND MIXER ALIGNMENT

Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.
The generator output lead should be terminated with its characteristic impedance, usually 50 ohms.
Use only enough sweep generator output to provide a usable pattern on scope.
Use 10MC sweep unless otherwise noted.
Coils not containing adjustable cores are adjusted by expanding or compressing coil turns.
Connect the negative lead of a 4.5 volt bias supply to point (T). Positive to chassis.

| | DUMMY ANTENNA | SWEEP GENERATOR COUPLING | SWEEP GENERATOR FREQUENCY | MARKER GENERATOR FREQUENCY | CHANNEL | CONNECT SCOPE | ADJUST | REMARKS |
|---|---|---|---|---|---|---|---|---|
| 2. | Two 120Ω Carbon Resistors | Across antenna terminals with 120Ω in each lead. | 195MC | 193.25MC<br>197.75MC | 10 | Vert. Amp. thru 10K to point (U). Low side to chassis. | A213, A214, A215 | Adjust A213 and A214 for maximum amplitude and symmetry with markers as shown in Fig. 202. Increase bias for MINIMUM amplitude of response curve. Without changing the bias adjust A215 to obtain MINIMUM response on the scope. Reduce bias. |
| 3. | " | " | 213MC | 211.25MC<br>215.75MC | 13 | " | A216 | Adjust for maximum amplitude of response similar to Fig. 202. Adjust by expanding or compressing coil turns. |
| | | | 207MC | 205.25MC<br>209.75MC | 12 | | A217 | |
| | | | 201MC | 199.25MC<br>203.75MC | 11 | | A218 | |
| | | | 195MC | 193.25MC<br>197.75MC | 10 | | A219 | |
| | | | 189MC | 187.25MC<br>191.75MC | 9 | | A220 | |
| | | | 183MC | 181.25MC<br>185.75MC | 8 | | A221 | |
| | | | 177MC | 175.25MC<br>179.75MC | 7 | | A222 | |
| | | | 85MC | 83.25MC<br>87.75MC | 6 | | A223 | |
| | | | 79MC | 77.25MC<br>81.75MC | 5 | | A224 | |
| | | | 69MC | 67.25MC<br>71.75MC | 4 | | A225 | |
| | | | 63MC | 61.25MC<br>65.75MC | 3 | | A226 | |
| | | | 57MC | 55.25MC<br>59.75MC | 2 | | A227 | |

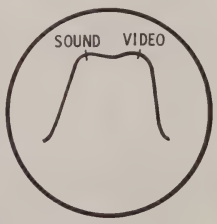


FIG. 202

# PARTS LIST AND DESCRIPTIONS

## TUBES

| ITEM No. | GENERAL ELECTRIC • USE | GENERAL ELECTRIC • TYPE | RAYTHEON • USE | RAYTHEON • TYPE | SYLVANIA • USE | SYLVANIA • TYPE |
|---|---|---|---|---|---|---|
| V1 | 1st Video IF Amp. | 6BZ6 | V8 | Sync Phase Inverter - Vert. Mult. | V8 | 6CG7 |
| V2 | 2nd Video IF Amp. | 6BZ6 | V9 | Vert. Mult. - Vert. Output | V9 | 6DT5 |
| V3 | 3rd Video IF Amp. | 6CB6A | V10 | Horiz. Mult. - Horiz. Output | V10 | 6CG7 |
| V4 | Video Output - 2nd Sound IF Amp. | 6AW8A | V11 | Damper | V11 | 6DQ6A |
| V5 | AGC Keying - Sync Sep. - Noise Limiter | 6BU8 | V12 | HV Rectifier | V12 | 6AU4GTA |
| V6 | Audio Detector | 6DT6 | V13 | LV Rectifier | V13 | 1G3GT/1B3GT |
| V7 | Audio Output | 6A86 | V14 | | V14 | 5U4GB |

## PICTURE TUBE

| ITEM No. | REPLACEMENT DATA: TRAV-LER PART No. | GENERAL ELECTRIC PART No. | RCA PART No. | RAYTHEON PART No. | SYLVANIA PART No. | NOTES |
|---|---|---|---|---|---|---|
| V15 | 23MP4 | 23MP4 ① | 23MP4 ① | | 23MP4 ② | ① Aluminized ② Silver Screen "85" |

## ELECTROLYTIC CAPACITORS

| ITEM No. | RATING: CAP | RATING: VOLT | REPLACEMENT DATA: TRAV-LER PART No. | AEROVOX PART No. | CORNELL-DUBILIER PART No. | GENERAL ELECTRIC PART No. | MALLORY PART No. | PYRAMID PART No. | SPRAGUE PART No. |
|---|---|---|---|---|---|---|---|---|---|
| C1A | 40 | 350 | EC-115 | AFH2-64-25 | BO483 | XC2-28 | FP247 | TMD-2700 | TVL-2780 |
| B | 100 | 350 | | | | | | | |
| C2A | 60 | 200 | EC-129 | AFH2-80 | BO590 | XC2-36 | FP248 | TMD-2550 | TVL-2559 |
| B | 100 | 50 | | | | | | | |
| C3 | 40 | 300 | EC-113 | PRS8580 | BR4025 | QT1-14 | TC58 | TD-40-250 | TVA-1511 |

## FIXED CAPACITORS

| ITEM No. | RATING | REMARKS | REPLACEMENT DATA: AEROVOX PART No. | CENTRALAB PART No. | CORNELL-DUBILIER PART No. | ELMENCO PART No. | MALLORY PART No. | SPRAGUE PART No. |
|---|---|---|---|---|---|---|---|---|
| C4 | .1mfd 100V | | P388N-1.0 | | CUB3W1 | 1DP-5-106 | GEM-21 | 2TM-M1 |
| C5 | .001 | | BPD-001 | DD-102 | BYA10D2 | CCD-102 | B-210 | 5HK-D10 |
| C6 | 330 | | DI-330 | DD-331 | BYA10T32 | CCD-331 | B-332 | 10TS-T32 |
| C7 | .1mfd 100V | | P388N-1.0 | | CUB3W1 | 1DP-5-106 | GEM-21 | 2TM-M1 |
| C8 | 330 | | DI-330 | DD-331 | BYA10T32 | CCD-331 | B-332 | 10TS-T32 |
| C9 | 330 | | DI-330 | DD-331 | BYA10T32 | CCD-331 | B-332 | 10TS-T32 |
| C10 | 330 | | DI-330 | DD-331 | BYA10T32 | CCD-331 | B-332 | 10TS-T32 |
| C11 | .0022 | | BPD-0022 | DD-222 | BYA10D22 | CCD-222 | B-222 | 5HK-D22 |
| C12 | 330 | | DI-330 | DD-331 | BYA10T32 | CCD-331 | B-332 | 10TS-T32 |
| C13 | 330 | | DI-330 | DD-331 | BYA10T32 | CCD-331 | B-332 | 10TS-T32 |
| C14 | 560 5% | | | | CM-19D-561J | MCJ247 | MS-356 | |
| C15 | .005 | | BPD-005 | DD-502 | BYA10D5 | CCD-502 | B-250 | 5HK-D50 |
| C16 | 330 | | DI-330 | DD-331 | BYA10T32 | CCD-331 | B-332 | 10TS-T32 |
| C17 | 330 | | DI-330 | DD-331 | BYA10T32 | CCD-331 | B-332 | 10TS-T32 |
| C18 | .005 | | BPD-005 | DD-502 | BYA10D5 | CCD-502 | B-250 | 5HK-D50 |
| C19 | 330 | | DI-330 | DD-331 | BYA10T32 | CCD-331 | B-332 | 10TS-T32 |
| C20 | .22 400V | | P488N-22 | | CUB4P22 | 4DP-5-224 | GEM-4022 | 4TM-P22 |
| C21 | .022 600V | | P688N-022 | DD-303 | CUB6S22 | 6DP-2-223 | GEM-6122 | 6TM-S22 |
| C22 | .047 600V | | P688N-047 | DD-503 | CUB6S47 | 6DP-5-473 | GEM-6147 | 6TM-S47 |
| C23 | .047 1000V | | P1068N-047 | | CUB10S47 | 10DP-5-473 | GEM-10147 | 10TM-S47 |
| C24 | .1 800V | | P568N-1 | DF-104 | CUB5P1 | 6DP-4-104 | GEM-501 | 6TM-P10 |
| C25 | .001 3000V | | HVD-30-1000 | DD30-102 | HVB3D01 | 3CCD-102 | ZHV-210 | BL-D10 |
| C26 | 47 | | SI 47 | DS-470 | LL0Q47 | CCD-470 | GP47 | 10TS-Q47 |
| C27 | 4.7 10% | | NPO-SI 4.7 | TCZ-4R7 | CH0Y47C | CCTO-4R7 | CNO-547 | 10TCC-V47 |
| C28 | .001 | | BPD-001 | DD-102 | BYA10D2 | CCD-102 | B-210 | 5HK-D10 |
| C29 | .0047 | | BPD-0047 | DD-472 | BYA10D47M | CCD-472 | B-247 | 5HK-D47 |
| C30 | .0015 | | BPD-0015 | DD-152 | BYA10D15 | CCD-152 | B-215 | 5HK-D15 |
| C31 | .047 200V | | P288N-047 | DD-503 | CUB2S47 | 4DP-5-473 | GEM-4147 | 4TM-S47 |
| C32 | 100 10% | | DI-100 | DD-101 | LL0T1 | CCD-101 | GP310 | 10TS-T10 |
| C33 | .047 1000V | | P1068N-047 | | CUB10S47 | 10DP-5-473 | GEM-10147 | 10TM-S47 |
| C34 | .01 | | BPD-01 | DD-103 | BYA10S2 | CCD-103 | B-110 | 5HK-S10 |
| C35 | .01 | | BPD-01 | DD-103 | BYA10S2 | CCD-103 | B-110 | 5HK-S10 |
| C36 | .01 1400V | | DAC-27 | DD8-103 | HVR16S2 | 16DP-3-103 | UAC-110 | BL-S10 |
| C37 | .01 | | BPD-01 | DD-103 | BYA10S2 | CCD-103 | B-110 | 5HK-S10 |
| C38 | .01 | | BPD-01 | DD-103 | BYA10S2 | CCD-103 | B-110 | 5HK-S10 |
| C39 | 150 | | DI-150 | DD-151 | LL0T15 | CCD-151 | GP315 | 10TS-T15 |
| C40 | .0047 | | BPD-0047 | DD-472 | BYA10D47M | CCD-472 | B-247 | 5HK-D47 |
| C41 | .002 10% | | DI-1000 | DD-102 | SR5D1 | CCD-102 | GP210 | 10TS-D10 |
| C42 | .001 10% | | DI-1000 | DD-103 | SR5D1 | CCD-102 | GP210 | 10TS-D10 |
| C43 | .0022 | | BPD-0022 | DD-222 | BYA10D22 | CCD-222 | B-222 | 5HK-D22 |
| C44 | .001 3000V | | HVD-30-1000 | DD30-102 | HVB20D1 | 3CCD-102 | ZHV-210 | BL-D10 |
| C45 | .047 200V | | P288N-047 | DD-503 | CUB2S47 | 4DP-5-473 | GEM-4147 | 4TM-S47 |
| C46 | .1 600V 10% | | V84C6P1-10% | | PM6P1 | 6DP-4-104 | GEM-1001 | 6TM-P10 |
| C47 | .1 600V 10% | | V84C6P1-10% | | PM6P1 | 6DP-4-104 | GEM-1001 | 6TM-P10 |
| C48 | .047 600V 10% | | V84C6S47-10% | | PM6S47 | 6DP-5-473 | GEM-1615 | 6TM-S47 |
| C49 | .047 600V 10% | | V84C6S47-10% | | PM6S47 | 6DP-5-473 | GEM-1615 | 6TM-S47 |
| C50 | .01 600V | | P688N-01 | DB-103 | CUB6S1 | 6DP-2-103 | GEM-611 | 6TM-S10 |
| C51 | .0047 | | BPD-0047 | DD-472 | BYA10D47M | CCD-472 | B-247 | 5HK-D47 |
| C52 | .047 600V | | P688N-047 | DD-503 | CUB6S47 | 6DP-3-473 | GEM-6147 | 6TM-S47 |
| C53 | .0039 10% | | 1464-0039 | | HS3D39 | CM-30B-392K | MCJ462.5 | MS-239 |
| C54 | 680 10% | | 1469-00068 | | SR5T68 | CM-19B-681K | MCJ249 | MS-368 |
| C55 | 680 10% | | 1469-00068 | | SR5T68 | CM-19B-681K | MCJ249 | MS-368 |
| C56 | .0047 | | BPD-0047 | DD-472 | BYA10D47M | CCD-472 | B-247 | 5HK-D47 |
| C57 | .047 600V | | P688N-047 | DD-503 | CUB6S47 | 6DP-3-473 | GEM-6147 | 6TM-S47 |
| C58 | .027 1600V 10% | | | | DPM8S63 | 16DP-5-303 | GEM-1613 | MB-S30 |
| C59 | 250 2000V N1500 10% | | | | | | | |
| C60 | 250 2000V N1500 10% | | | | | | | |
| C61 | 330 2000V 10% | | | | | | | |
| C62 | .047 600V | | P688N-047 | DD-503 | CUB6S47 | 6DP-3-473 | GEM-6147 | 6TM-S47 |

## CONTROLS

| ITEM No. | RATING: RESISTANCE | RATING: WATTS | REPLACEMENT DATA: TRAV-LER PART No. | CENTRALAB PART No. | CLAROSTAT PART No. | CTS-IRC PART No. | MALLORY PART No. | INSTALLATION NOTES |
|---|---|---|---|---|---|---|---|---|
| R1A | 500K | 1 | VC-130 | BPL-60 | C478-500K-Z | B13-133 * | PP55A | Volume |
| B | Shaft | | | Not Req. | KS8-3 | Not Req. | Not Req. | |
| C | Switch | | | Not Req. | SK7 * | Not Req. | Not Req. | Power Off-On |
| R2A | 1000Ω | | VC-195A | F1-5 | | F1-5 | | Contrast |
| B | 1500Ω | | | R2-6 | (RTV-734) | †(QU518) | (UE4191) | Vert. Linearity |
| R3A | 200E | | VC-194A | F1-33 | | F1-33 | | Vert. Hold |
| B | 2.5meg | | | R2-76 | (RTV-733) | †(QU1130) | (UE4121) | Vert. Height |

## CONTROLS (cont)

| ITEM No. | RATING: RESISTANCE | RATING: WATTS | REPLACEMENT DATA: TRAV-LER PART No. | CENTRALAB PART No. | CLAROSTAT PART No. | CTS-IRC PART No. | MALLORY PART No. | INSTALLATION NOTES |
|---|---|---|---|---|---|---|---|---|
| R4A | 100K | 1/2 | VC-84 | TT-40 | B47-100K-S | B11-128 | PTA15L | Brightness |
| B | Shaft | | | Not Req. | Not Req. | TM4 | Not Req. | |
| R5A | 100K | 1/2 | VC-84 | TT-40 | B47-100K-S | B11-128 | PTA15L | AGC |
| B | Shaft | | | Not Req. | Not Req. | TM4 | Not Req. | |

† "CONCENTRIKIT" Equivalent: K-15 Kit with Base Elements and Shafts: B17-106, P17-038 (Panel) B11-106, R15-005 (Rear)

† "CONCENTRIKIT" Equivalent: K-15 Kit with Base Elements and Shafts: B11-129, P17-038 (Panel) B11-336, R15-005 (Rear) (Not available as a factory assembled unit).

■ "STA-LOC" Equivalent: FA13R, RU532L, O8875A, IK826.

▲ "STA-LOC" Equivalent: FA35L, RU255L, O8875A, IK825.

* Factory assembled Part #PPQ13-133 (SKT).

## RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

| ITEM No. | RATING | REPLACEMENT DATA: IRC PART No. | WORKMAN TV PART No. | REMARKS |
|---|---|---|---|---|
| R6 | 10meg | | | |
| R7 | 3meg | | | |
| R8 | 2.2meg | | | |
| R9 | 150K | | | |
| R10 | 1000Ω | | | |
| R11 | 4700Ω | | | |
| R12 | 39K | | | |
| R13 | 3300Ω | | | |
| R14 | 47Ω | | | |
| R15 | 220K | | | |
| R16 | 220K | | | |
| R17 | 4700Ω | | | |
| R18 | 470Ω | | | |
| R19 | 68Ω | | | |
| R20 | 22K | | | |
| R21 | 470Ω | | | |
| R22 | 470Ω | | | |
| R23 | 150Ω | | | |
| R24 | 390K | | | |
| R25 | 8200Ω 1W | | | |
| R26 | 6800Ω | | | |
| R27 | 100Ω | | | |
| R28 | 47K | | | |
| R29 | 7500Ω 5W | PWS-7500 | 5W-SQ-7500 | |
| R30 | 39K | | | |
| R31 | 1200Ω | | | |
| R32 | 47Ω | | | |
| R33 | 180Ω | | | |
| R34 | 15K | | | |
| R35 | 82K | | | |
| R36 | 120K | | | |
| R37 | 150K | | | |
| R38 | 470K | | | |
| R39 | 220K | | | |
| R40 | 47K | | | |
| R41 | 4.7meg | | | |
| R42 | 270K | | | |
| R43 | 56K | | | |
| R44 | 39K | | | |
| R45 | 56K | | | |
| R46 | 100K | | | |
| R47 | 100K | | | |
| R48 | 330Ω | | | |
| R49 | 580K | | | |

| ITEM No. | RATING | REPLACEMENT DATA: IRC PART No. | WORKMAN TV PART No. | REMARKS |
|---|---|---|---|---|
| R50 | 100K | | | |
| R51 | 560K | | | |
| R52 | 8200Ω | | | |
| R53 | 6MΩ | | | |
| R54 | 1meg | | | |
| R55 | 1meg | | | |
| R56 | 150Ω | | | |
| R57 | 220Ω 2W | | | |
| R58 | 15K 2W | | | |
| R59 | 2.2meg | | | |
| R60 | 4.7meg | | | |
| R61 | 6800Ω | | | |
| R62 | 5600Ω | | | |
| R63 | 2200Ω | | | |
| R64 | 3300Ω | | | |
| R65 | 150K | | | (220Ω) * |
| R66 | 820K | | | |
| R67 | 56K | | | |
| R68 | 2.2meg | | | |
| R69 | 220K | | | |
| R70 | 100Ω | | | |
| R71 | 220Ω 1W | | | |
| R72 | 39K 1W | | | |
| R73 | 39K | | | |
| R74 | 220Ω | | | |
| R75 | 3.6Ω (Cold) | | | |
| R76 | 220Ω | | | |
| R77 | 100K | | | |
| R78 | 100K | | | |
| R79 | 4.7meg | | | |
| R80 | 470K | | | |
| R81 | 7500Ω 5% | | | |
| R82 | 56K | | | |
| R83 | 100K | | | |
| R84 | 1500Ω | | | |
| R85 | 15K | | | |
| R86 | 100Ω | | | |
| R87 | 470K | | | |
| R88 | 12K 3W | PW3-12K | 3G-12K | |
| R89 | 4700Ω | | | |
| R90 | 1.2Ω | | | |
| R91 | 270K | | | |
| R92 | 22K 3W | PW3-22K | 3G-22K | |

* Alternate Value

## COMPONENT COMBINATIONS

| ITEM No. | USE | DESCRIPTION | TRAV-LER PART No. | REPLACEMENT DATA |
|---|---|---|---|---|
| K1 | Vert. Integrator | .0047mfd, .01mfd, 15K, 15K | CC-120 | Centralab PC-392 |

## COILS (RF-IF)

| ITEM No. | USE | REPLACEMENT DATA: TRAV-LER PART No. | Merit PART No. | Miller PART No. | Stancor PART No. | Workman TV PART No. | NOTES |
|---|---|---|---|---|---|---|---|
| L1 | 1st Video IF | L-150 | TV-136 * | 6231 * | RTC-8553 * | T208 * | * Disregard Secondary. |
| L2A | 2nd Video IF | L-103 | TV-137 | 6232 | RTC-8559 | T209 | ▲ Parallel with 4700Ω Resistor. |
| B | 41.25MC Trap | | | | | | |
| L3A | 3rd Video IF | L-105 | TV-138 | 6233 | RTC-8561 | T210 | † Parallel with 10K Resistor. |
| B | 47.25MC Trap | | | | | | |
| L4 | 4th Video IF | L-153 ① | | | | T376 | |
| L5 | RF Choke (10uh) | L-160 | BC-566 | 4612 | RTC-8532 | T980 | ① Includes Complete Assembly. |
| L6 | RF Choke (270uh) | L-158 | TV-192 | 4515 | RTC-8525 | T863 | |
| L7A | 4.5MC Trap | L-154 | | 1482 IFT | RTC-9056 | T253 | ② Wound on 4700Ω Resistor. |
| B | 1st Sound IF | | | | | | |
| L8 | Peaking (180uh) | L-161 ② | TV-184 ▲ | 6180 ▲ | RTC-8597 ▲ | T359 | ③ Wound on 10K Resistor. |
| L9 | Peaking (950uh) | L-163 ③ | TV-208 † | 6157 † | RTC-8598 † | T277 | |
| L10 | 2nd Sound IF | L-167 | | | | TA232 | |
| L11 | Quadrature | L-110A | TV-154 | 1481 | RTC-8606 | T248 | |
| L12 | Fil. Choke (1.5uh) | L-164 | BC-562 | 4604 | RTC-8516 | T856 | |

## COILS (SWEEP CIRCUITS)

| ITEM No. | USE | REPLACEMENT DATA: TRAV-LER PART No. | Merit PART No. | Miller PART No. | Stancor PART No. | Thordarson PART No. | Triad PART No. | Workman TV PART No. | NOTES |
|---|---|---|---|---|---|---|---|---|---|
| L13 | Horiz. Stabilizer (Horiz. Hold) | L-156 | TV-163 | 6210 | RTC-8522 | HS-5 | WLC-25 | T103 | |

## FILTER CHOKE

| ITEM No. | RATINGS: CURRENT (Measured) | DC RES. | INDUCTANCE (0 CURRENT 1000 ^A) | REPLACEMENT DATA: TRAV-LER PART No. | Merit PART No. | Stancor PART No. | Thordarson PART No. | Triad PART No. | NOTES |
|---|---|---|---|---|---|---|---|---|---|
| L14 | .265A | 53Ω | 1 Hy. | FC-18 | C-3996 | C-3328 | 28C64 | C-34X | |

## TRANSFORMER (POWER)

| ITEM No. | RATING: PRI. | SEC. 1 | SEC. 2 | SEC. 3 | SEC. 4 | SEC. 5 | REPLACEMENT DATA: TRAV-LER PART No. | Merit PART No. | Stancor PART No. | Thordarson PART No. | Triad PART No. | NOTES |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| T1 | 117V 1.75A | 560VCT @ .265A DC | 5V @ 3A | 6.3V ② 9.2A | | | TR-52A | P-3683 | P-8365 ① | | R-75BA | ① Drill new mounting hole(s). |

## TRANSFORMERS (SWEEP CIRCUITS)

| ITEM No. | USE | REPLACEMENT DATA: TRAV-LER PART No. | Merit PART No. | Stancor PART No. | Thordarson PART No. | Triad PART No. | NOTES |
|---|---|---|---|---|---|---|---|
| T2 | Vert. Output | TR-50A | MDF-120① | DY-27A ② | 26S14 Y-52 ② | A-140X Y-80-1 ③ | |
| T3 | Yoke (Horiz. 18.6MH) (1/4") (Vert. 12.6MH) | L-174C | | | | | |
| T4 | Horiz. Output | TR-51 | HVO-152 * | HO-304 * | FLY-137 * | D-151R * | |

① Connect Yoke Terminal #5 to Yoke Plug Pin #3; Yoke Terminals #4 and #6 to Yoke Plug Pin #4; Yoke Terminal #6 to Plug Pin #5.

② Requires new rear cover and centering device.
③ Remove 4700Ω ½ watt Resistor from across vertical winding.

### *HORIZONTAL OUTPUT TRANSFORMER CONNECTION DATA

| ORIGINAL TERMINAL CONNECTIONS | Merit Replacement Connections | Stancor Replacement Connections | Thordarson Replacement Connections | Triad Replacement Connections |
|---|---|---|---|---|
| 5 | 5 | 5 | 5 | 5 or 4 |
| 6 | 6 | 6 | 6 | 6 |
| 7 | 7 | 7 | 7 | 7 |
| 8 | 8 | 8 | 8 | 8 |
| 2 | 2 | 2 | 1 | 2 |
| 1 | 1 | 1 | 2 | 1 |

## TRANSFORMER (AUDIO OUTPUT)

| ITEM No. | IMPEDANCE: PRI. | SEC. | REPLACEMENT DATA: TRAV-LER PART No. | Merit PART No. | Stancor PART No. | Thordarson PART No. | Triad PART No. | NOTES |
|---|---|---|---|---|---|---|---|---|
| T5 | 4700Ω | 3-4Ω | AT-50 | A-3026 | A-3877 | 24S48 | S-52 | |

## SPEAKER

| ITEM No. | TYPE: SIZE | FIELD | V. C. IMP. | REPLACEMENT DATA: TRAV-LER PART No. | QUAM PART No. | NOTES |
|---|---|---|---|---|---|---|
| SP1 | 5" | PM | 3-4Ω | SPK-36 | 5A07 | |

## FUSES

| ITEM No. | TYPE | RATING | REPLACEMENT DATA: TRAV-LER PART No. FUSE | TRAV-LER PART No. HOLDER | LITTELFUSE PART No. FUSE | LITTELFUSE PART No. HOLDER | BUSS PART No. FUSE | BUSS PART No. HOLDER |
|---|---|---|---|---|---|---|---|---|
| M1 | N | 3/4A 125V 8/B | | | 333.750 (N 3/4A 125V 8/B) | 346010 | N 3/4 | HN 1/2 - 3/4 |
| M2 | 1" | length of #26 wire | | | | | | |

## SIGNAL DIODES

| ITEM No. | ORIG. TYPE | REPLACEMENT DATA: TRAV-LER PART No. | GENERAL ELECTRIC PART No. | RAYTHEON PART No. | NOTES |
|---|---|---|---|---|---|
| M3 | 1N87 | SR-15 * | 6GD1 * | 1N87 | * Dual Selenium Diode, Series Connected Type (AFC) Crystal Diode, Video Detector |
| M4 | 1N87 | 1N87 | | | |

## MISCELLANEOUS

| ITEM No. | PART NAME | TRAV-LER PART No. | NOTES |
|---|---|---|---|
| M5 | Tuner | TA-62 | VHF Complete, STANDARD COIL REPLACEMENT #GG-4220A |

TRAV-LER MODELS 23K61B0F, M, W (Ch. 1062-151)

FOLDER 1

# PARTS LIST AND DESCRIPTIONS (Continued)

## CABINETS & CABINET PARTS

(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

### WIRING DATA

| | | |
|---|---|---|
| High Voltage Lead | Use BELDEN No. | 8869 |
| Shielded Hook-up Wire | Use BELDEN No. | 8885 (Single Conductor)<br>8738 (Two Conductor) |
| General-use Unshielded Hook-up Wire | Use BELDEN No. | 8530 (Solid) Available in Ten Colors<br>8524 (Stranded) Available in Ten Colors |
| Power Cord (Interlock Type) | Use BELDEN No. | 8874 |
| 300Ω Tuner Input Lead | Use BELDEN No. | 8225 |
| 300Ω Antenna Lead-in | Use BELDEN No. | 8230 or 8275 |
| Antenna Rotor Cable | Use BELDEN No. | 8484 (Flat) or 8484 (Round) - 4 Conductor<br>8485 (Round) - 5 Conductor<br>8488 (Round) - 8 Conductor |

# TUNER PARTS LIST AND DESCRIPTIONS

## TUBES

| ◆ GENERAL ELECTRIC ◆ | | | ◆ RAYTHEON ◆ SYLVANIA ◆ | | |
|---|---|---|---|---|---|
| ITEM No. | USE | TYPE | ITEM No. | USE | TYPE |
| V201 | RF Amp. | 6GK5 | V202 | Mixer - Osc. | 6CG8A |

## FIXED CAPACITORS

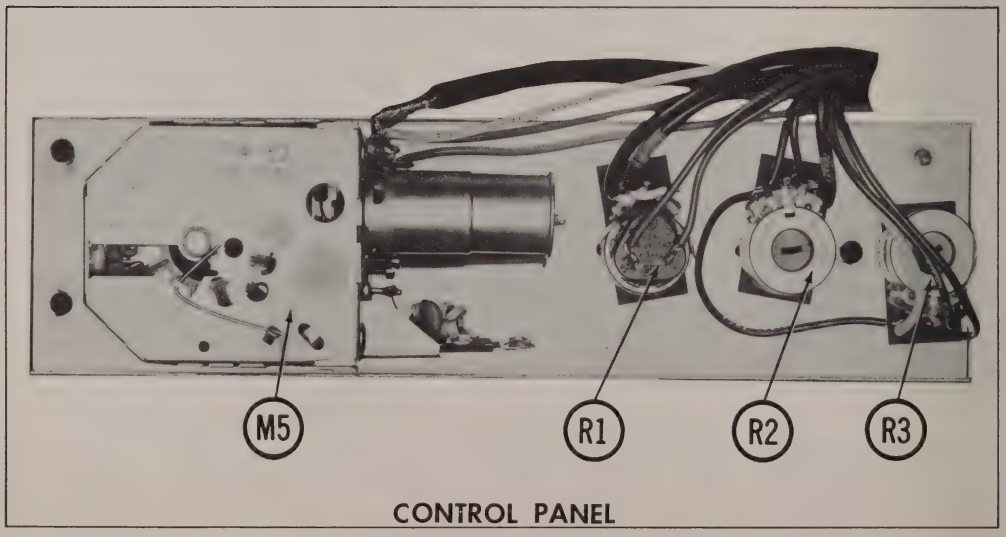
| ITEM No. | RATING | REMARKS | REPLACEMENT DATA | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | AEROVOX PART No. | CENTRALAB PART No. | CORNELL-DUBILIER PART No. | ELMENCO PART No. | MALLORY PART No. | SPRAGUE PART No. |
| C201A | 27 N750 10% | | N750-DI 25 | TCN-27 | C10Q27U | CCTN-270 | CN7-427 | 10TCU-Q27 |
| B | 27 N750 10% | | N750-DI 25 | TCN-27 | C10Q27U | CCTN-270 | CN7-427 | 10TCU-Q27 |
| C202A | 27 N750 10% | | N750-DI 25 | TCN-27 | C10Q27U | CCTN-270 | CN7-427 | 10TCU-Q27 |
| B | 27 N750 10% | | N750-DI 25 | TCN-27 | C10Q27U | CCTN-270 | CN7-427 | 10TCU-Q27 |
| C203 | 19 | | | | | | | |
| C204 | 20 5% | | NPO-DI 20 | DTZ-20 | C10Q2C | CCTO-200 | CNO-422 | 10TCC-Q20 |
| C205 | .001 | | EF-001 | MFT-1000 | | CCF-102 | CT280A | |
| C206 | 1.8-7 | | | 829-7 | | | | |
| C207 | 100 | | EF-0001 | MFT-100 | | | | |
| C208 | .5-3 | | | 829-3 | | CV-1 | CT565 | |
| C209 | 33 N220 | | | | | * | | 10TCR-Q33 |
| C210 | .5-3 | | | 829-3 | | CV-1 | CT565 | |
| C211 | 40 | | | | | | | |
| C212 | 92 N750 5% | | | TCN-91 | C10Q91U | | | |
| C213 | .001 | | BPD-001 | DD-102 | BYA10D1 | CCD-102 | GP210 | 10TS-D10 |
| C214 | 7.25 | | | | | | | |
| C215 | 18 N330 | | | | | * | | 10TCS-Q18 |
| C216 | .001 | | EF-001 | MFT-1000 | | CCF-102 | CT280A | |
| C217 | .001 | | EF-001 | MFT-1000 | | CCF-102 | CT280A | |

* Not normally in distributor's stock. Available thru distributor on order to manufacturer.

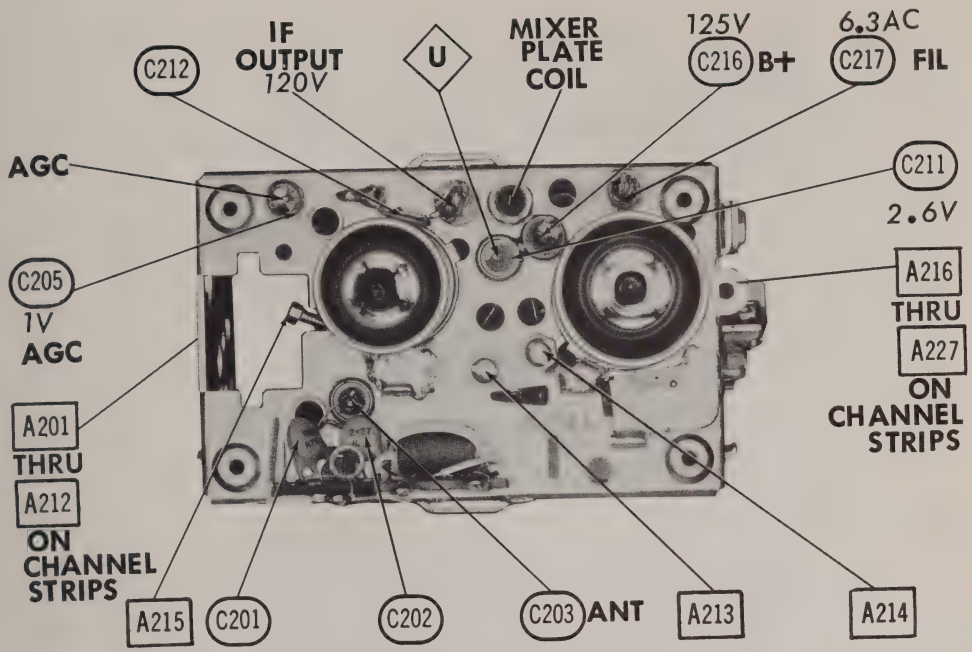
## RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

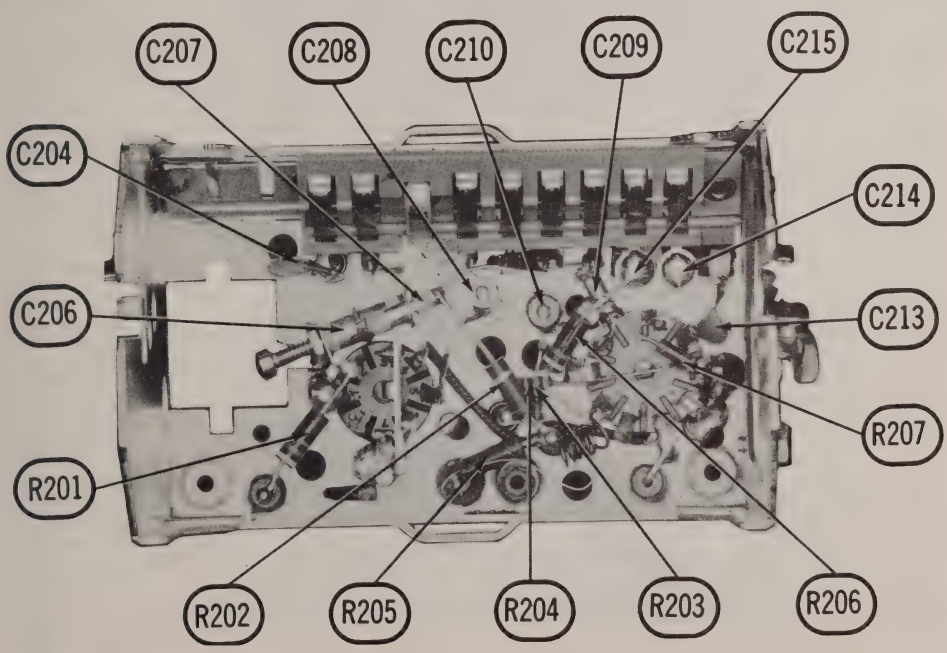
| ITEM No. | RATING | REPLACEMENT DATA | | | ITEM No. | RATING | REPLACEMENT DATA | | |
|---|---|---|---|---|---|---|---|---|---|
| | | IRC PART No. | WORKMAN TV PART No. | REMARKS | | | IRC PART No. | WORKMAN TV PART No. | REMARKS |
| R201 | 47K | | | | R205 | 1000Ω | | | |
| R202 | 1200Ω | | | | R206 | 4700Ω | | | |
| R203 | 2200Ω | | | | R207 | 4700Ω | | | |
| R204 | 220K | | | | | | | | |



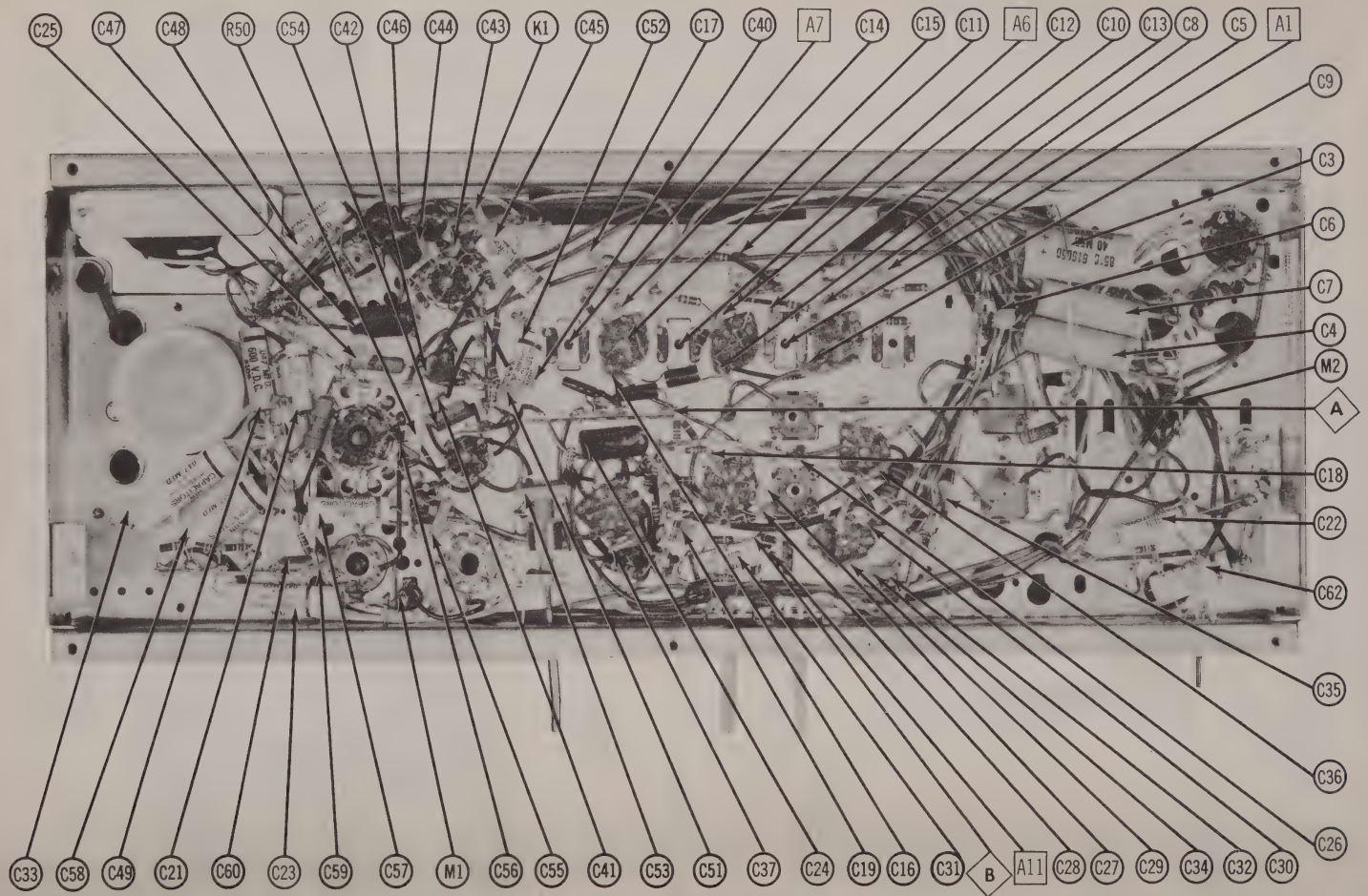

CONTROL PANEL




TUNER TA-62 - TOP VIEW




TUNER TA-62 - BOTTOM VIEW



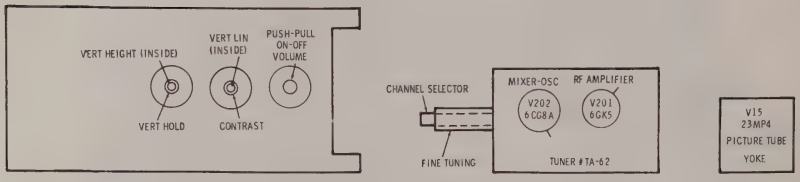

CHASSIS BOTTOM VIEW - ALIGN., CAPACITOR, MISC. IDENT.

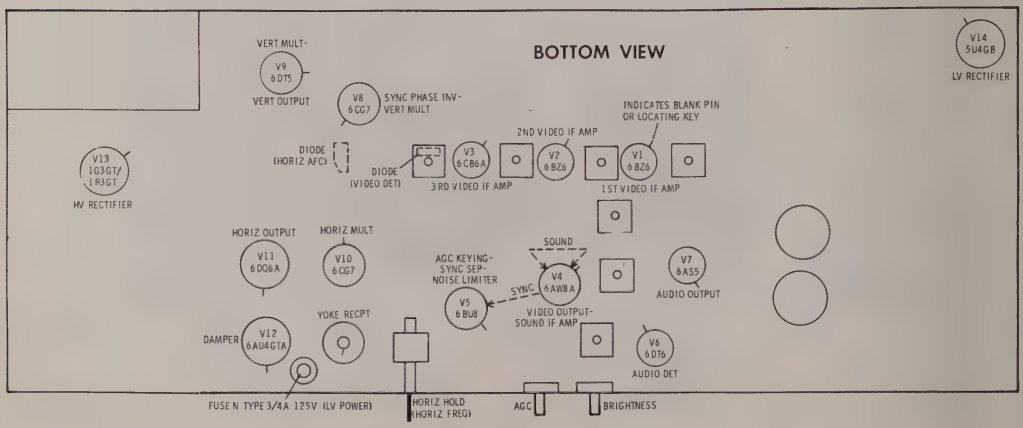
CHASSIS - TOP VIEW

# RESISTANCE MEASUREMENTS

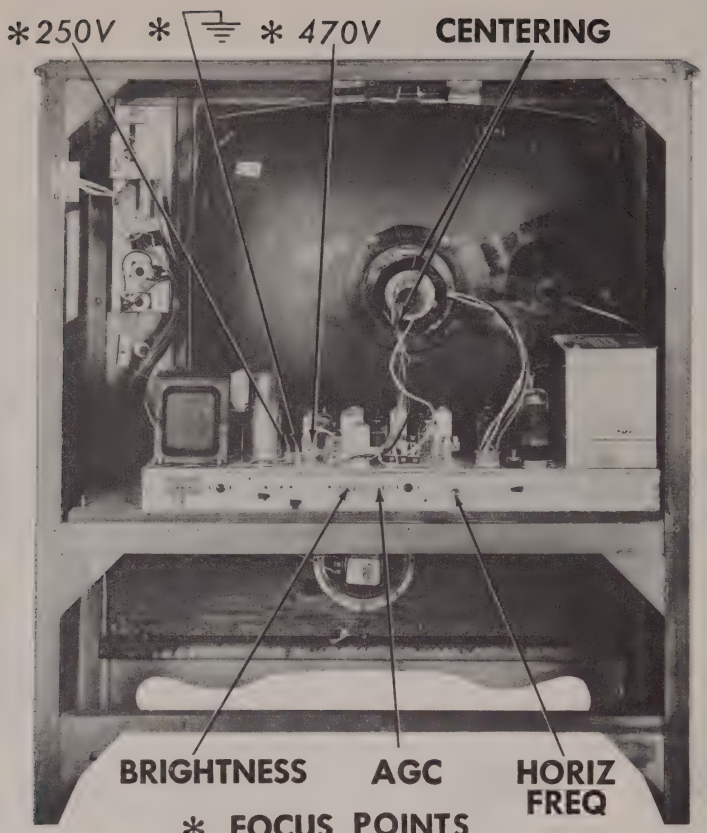
| ITEM | TUBE | Pin 1 | Pin 2 | Pin 3 | Pin 4 | Pin 5 | Pin 6 | Pin 7 | Pin 8 | Pin 9 |
|---|---|---|---|---|---|---|---|---|---|---|
| V1 | 6BZ6 | 150K | 47Ω | FIL | FIL | ▲540Ω | ▲540Ω | 0Ω | | |
| V2 | 6BZ6 | 120K | †180K | FIL | FIL | †520Ω | †520Ω | ▲68Ω | | |
| V3 | 6CB6A | .1Ω | 150Ω | FIL | FIL | ■470Ω | ■470Ω | 0Ω | | |
| V4 | 6AW8A | 0Ω | 100K | ■100K | FIL | FIL | ● 90Ω | 6900Ω | ■1200Ω | †7600Ω |
| V5 | 6BU8 | ■0Ω | †8200Ω | 2meg | FIL | FIL | ● 30K | †390K | †40K | ■4.7meg |
| V6 | 6DT6 | 18Ω | 680Ω | FIL | FIL | † 780K | ■8200Ω | 560K | | |
| V7 | 6AS5 | ¶ 12K | NC | FIL | FIL | 500K | †270Ω | †555Ω | | |
| V8 | 6CG7 | ●†1.8meg | 150K | ● 75K | FIL | FIL | †12K | 1.6meg | 3300Ω | 0Ω |
| V9 | 6DT5 | †150Ω | NC | 2.2meg | FIL | FIL | NC | ●360Ω | NC | †410Ω |
| V10 | 6CG7 | †7500Ω | 1meg | 1500Ω | FIL | FIL | †100K | 56K | 1500Ω | 0Ω |
| V11 | 6DQ6A | NC | FIL | NC | †12K | 470K | TP | FIL | 0Ω | TOP CAP †10Ω |
| V12 | 6AU4GTA | NC | NC | 620K | NC | †53Ω | NC | FIL | FIL | |
| V13 | 1G3GT / 1B3GT | PINS 1 THRU 8 HAVE INFINITE RESISTANCE | | | | | | | | TOP CAP †440Ω |
| V14 | 5U4GB | NC | ¶ 40K | NC | 25Ω | NC | 23Ω | NC | ¶ 40K | |
| V15 | 23MP4 | FIL | 39K | †120K | † 150K | NC | NC | ●100K | FIL | |
| V201 | 6GK5 | 0Ω | 2.8meg | FIL | FIL | ■1500Ω | 0Ω | 0Ω | | |
| V202 | 6CG8A | 4700Ω | ■5000Ω | 0Ω | FIL | FIL | ■1300Ω | ■330Ω | 0Ω | 220K |
| ITEM | TUBE | Pin 1 | Pin 2 | Pin 3 | Pin 4 | Pin 5 | Pin 6 | Pin 7 | Pin 8 | Pin 9 |

¶ THIS READING WILL VARY DEPENDING UPON THE CONDITION OF THE ELECTROLYTIC IN THE CIRCUIT.
● THIS READING WILL VARY. CONTROL SET FOR NORMAL OPERATION.
† MEASURED FROM PIN 8 OF V14.
† MEASURED FROM PIN 3 OF V12.
NC NO CONNECTION
■ MEASURED FROM PIN 1 OF V7.
▲ MEASURED FROM PIN 2 OF V2.
TP TIE POINT




## TUBE PLACEMENT CHART




* FOCUS POINTS

CABINET—REAR VIEW

## HORIZONTAL SWEEP CIRCUIT ADJUSTMENTS

Turn the set on and tune in a TV station, preferably with a test pattern.

Set the Brightness and Contrast for a normal picture.

Turn the Horizontal Hold (Freq. Slug) clockwise until the picture loses sync. It may be necessary to switch off channel and back again for picture to lose sync.

Turn the Horizontal Hold slowly counterclockwise until the picture just falls into sync.

## DISASSEMBLY INSTRUCTIONS

CHASSIS REMOVAL

1. Remove 5 push-on type knobs on front panel.
2. Remove 9 screws in rear cover. Remove rear cover.
3. Remove 5 chassis bolts.
4. Remove 3 (1/4") nuts holding control bracket. Remove bracket.
5. Disconnect picture tube socket, yoke plug, hi voltage lead, and unsolder speaker leads.
   NOTE: Speaker leads must be unsoldered at output transformer.
6. Pull chassis straight out.

PICTURE TUBE REMOVAL

It is necessary to remove the chassis for picture tube removal.

PHOTOFACT® Folder

**ZENITH CHASSIS 16G23,
16G23Q, 16G23U**

**IMPORTANT FILING NOTICE**

The TV Folder for this envelope will be found among the first folders in this complete Set of folders.

Merely insert the corresponding folder on this model in this envelope to retain proper filing and indexing order.

ZENITH CHASSIS 16G23,
16G23Q, 16G23U

MODEL G3350W

ZENITH CHASSIS 16G23,
16G23Q, 16G23U



**HOWARD W. SAMS & CO., INC.** Indianapolis 6, Indiana

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# ZENITH CHASSIS 16G23, 16G23Q, 16G23U

ZENITH CHASSIS 16G23, 16G23Q, 16G23U

MODEL G3350W

| TRADE NAME | ZENITH MODELS | TV Chassis | Remote Control Receiver |
|---|---|---|---|
| | F2710YZ; F2712EZ, RZ, WZ; F2735E, R, W; F2738E, M, R, W; F2739E, W; F2740E, R, W; F2755H, M, R, W; F2756E, R, W; F2786E, R, W | 16G23 | |
| | F2710YZU; F2712EZU, RZU, WZU; F2735EU, RU, WU; F2738EU, MU, RU, WU; F2739EU, WU; F2740EU, RU, WU; F2755HU, MU, RU, WU; F2756EU, RU, WU; F2786EU, RU, WU | 16G23U | |
| | F3342E, R, W | 16G23Q | S-50153 or S-51773 |
| | F3348R, W; F3350E, R, W; F3353W; F3354M, R | 16G23Q | S-50264 or S-51864 |

| ZENITH MODELS | TV Chassis | Remote Control Receiver | FM-AM Tuner | Audio Amp. Chassis | Record Changer |
|---|---|---|---|---|---|
| G2705R, Y; G2707R, Y; G2730E, M, R, W; G2735L, R, W; G2737E, R, W; G2738E, M, R, W; G2740H, R, W; G2752R, W, Y | 16G23 | | | | |
| G2705RU, YU; G2707RU, YU; G2730EU, MU, RU, WU; G2735LU, RU, WU; G2737EU, RU, WU; G2738EU, MU, RU, WU; G2740HU, RU, WU; G2752RU, WU, YU | 16G23U | | | | |
| G2780E, R, W | 16G23 | | 4G21 | | #169-144 |
| G2780EU, RU, WU | 16G23U | | 4G21 | | #169-144 |
| G2786E, M, R, W; G2787W | 16G23 | | 7F20* | 4G21 | #169-145 |
| G2786EU, MU, RU, WU; G2787WU | 16G23U | | 7F20* | 4G21 | #169-145 |
| G3341E, M, R, W | 16G23Q | S-51773 | | | |
| G3346E, M, R, W | 16G23Q | S-51774 | | | |
| G3348R, W; G3350E, R, W | 16G23Q | S-51864 | | | |

| | |
|---|---|
| MANUFACTURER | Zenith Radio Corp., 6001 Dickens Ave., Chicago 39, Illinois |
| TUBES | TV: VHF - Sixteen, UHF - Seventeen; Remote Control Receiver S-50153, S-51773: Six<br>Audio Amp. 4G21: Four; Remote Control Receiver S-51864, S-51774, S-50264: Eight |
| POWER SUPPLY | 110-120 Volts AC, 60 Cycle RATING TV w/Remote S-51864: 180 Watts, 1.6 Amp. @ 117 Volts AC (230 Watts While Tuning) |
| TUNING RANGE | TV - Channels 2 thru 13 VHF, 14 thru 83 UHF, Video IF 45.75MC, Sound IF 41.25MC (Intercarrier) |

*FOR SERVICE INFORMATION ON FM-AM TUNER 7F20 - SEE PHOTOFACT SET 525 FOLDER 2

FOR SERVICING IN THE FIELD INFORMATION - SEE PAGE 21

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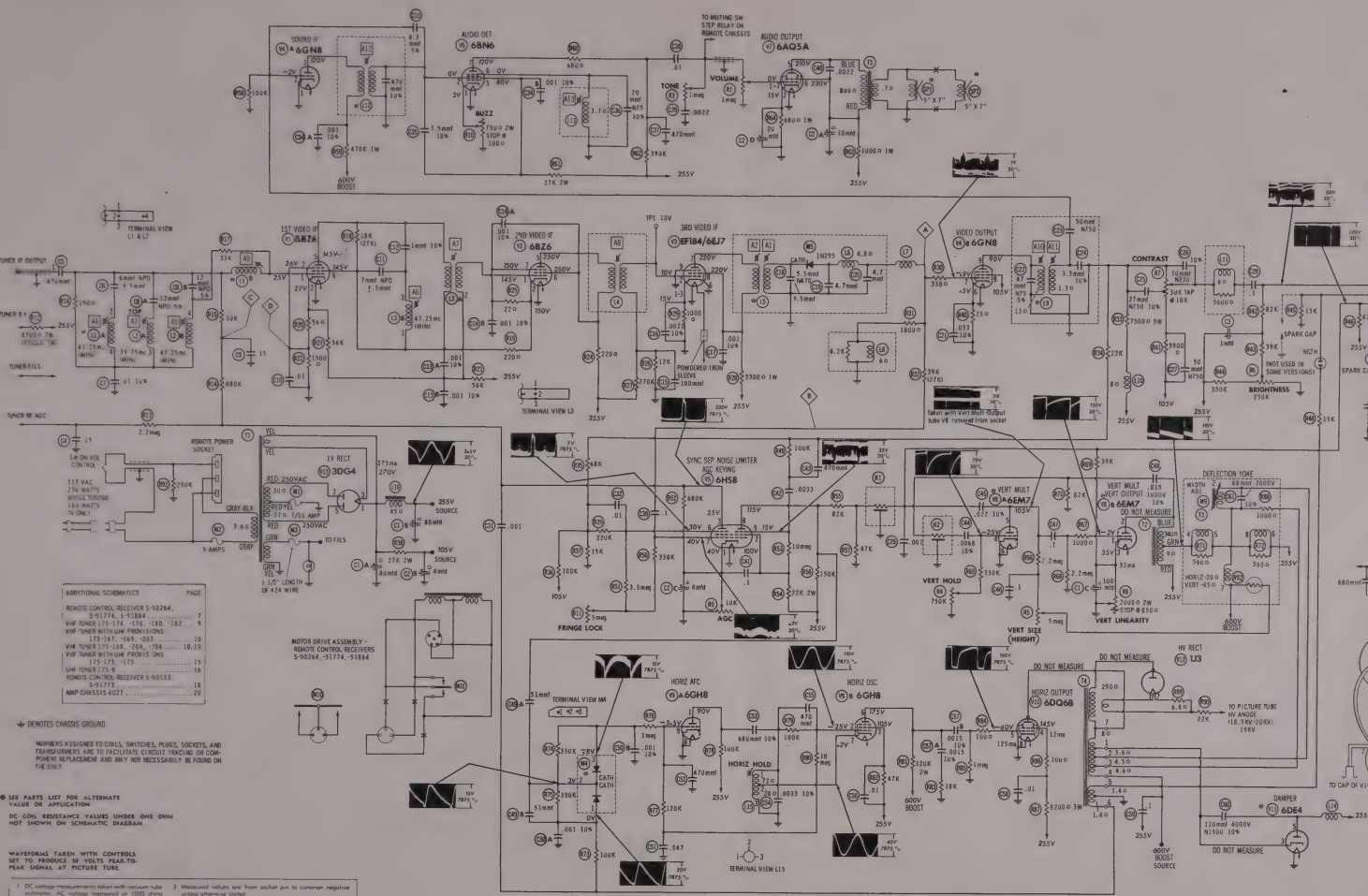
LA164



SET 557 FOLDER 2




| ADDITIONAL SCHEMATICS | PAGE |
|---|---|
| REMOTE CONTROL RECEIVER S-50264, S-51774, S-51864 | 7 |
| VHF TUNER 175-174, -176, -180, -182 | 9 |
| VHF TUNER WITH UHF PROVISIONS 175-187, -169, -203 | 10 |
| VHF TUNER 175-168, -204, -206 | 10,15 |
| VHF TUNER WITH UHF PROVISIONS 175-175, -175 | 15 |
| UHF TUNER 175-8 | 18 |
| REMOTE CONTROL RECEIVER S-50193, S-51773 | 18 |
| AMP CHASSIS 4G21 | 20 |

⏚ DENOTES CHASSIS GROUND

NUMBERS ASSIGNED TO COILS, SWITCHES, PLUGS, SOCKETS, AND TRANSFORMERS ARE TO FACILITATE CIRCUIT TRACING OR COMPONENT REPLACEMENT AND MAY NOT NECESSARILY BE FOUND ON THE RIM.

⊛ SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM

WAVEFORMS TAKEN WITH CONTROLS SET TO PRODUCE 50 VOLTS PEAK-TO-PEAK SIGNAL AT PICTURE TUBE.

1. DC voltage measurements taken with vacuum tube voltmeter, AC voltage measured at 1000 ohms per volt.
2. Pin numbers are counted in clockwise direction on bottom of socket.
3. Measured values are from socket pin to common negative unless otherwise noted.
4. Line Voltage maintained at 117 volts for voltage readings.
5. All controls set for normal operation, no signal applied.

A PHOTOFACT STANDARD NOTATION SCHEMATIC

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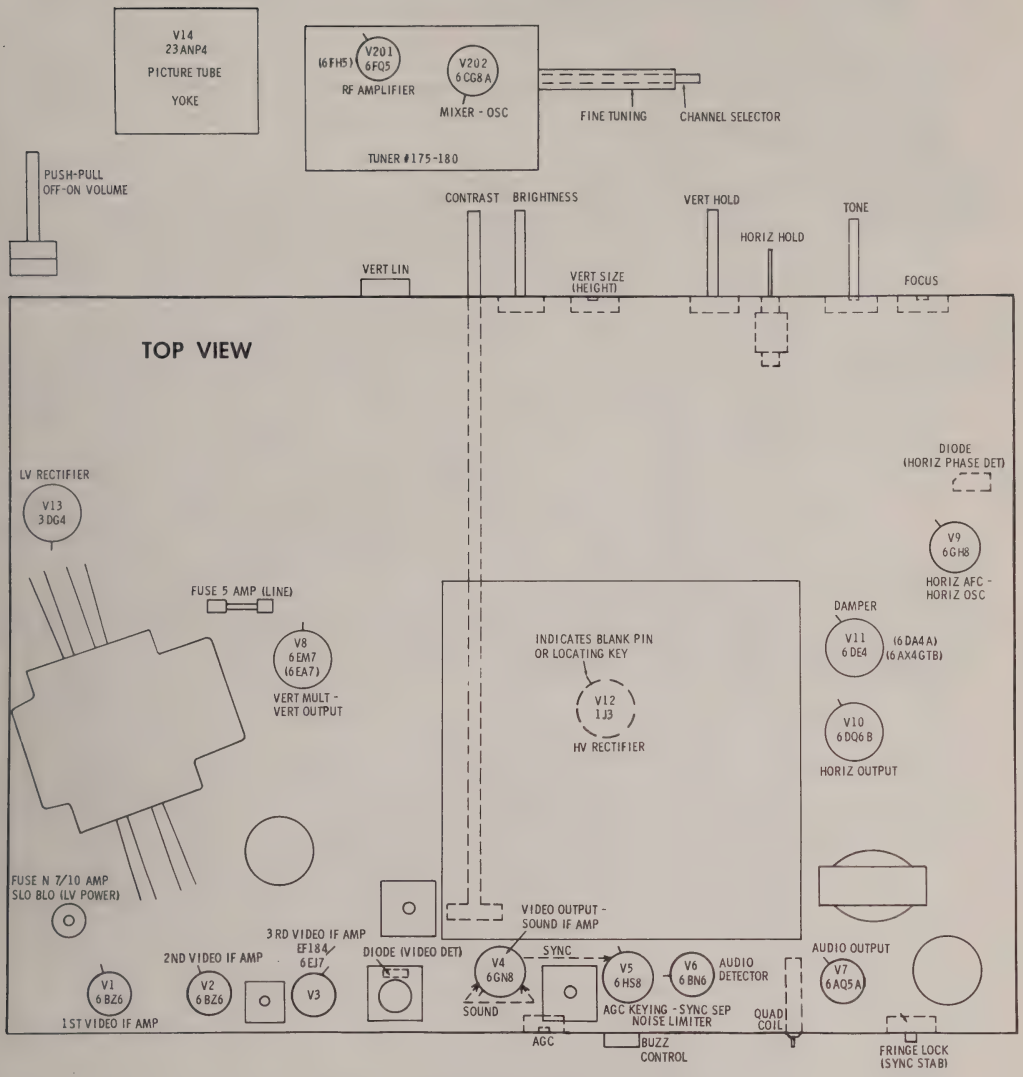
ZENITH CHASSIS 16G23, 16G23Q, 16G23U

# TUBE PLACEMENT CHART




# TUBE FAILURE CHECK CHART

The following chart lists tubes whose failures are most likely to produce indicated symptoms. Refer to tube placement chart for location and type of tube.

**POWER SUPPLY FAILURE**
No raster, no sound Fuse (Line), Fuse (LV Power), Fuse Wire (Fil), V13

**SWEEP FAILURE**
No raster, has sound V9, V10, V11, V12, V14
No vertical deflection V8
Poor vert. linearity or foldover V8
Poor horiz. linearity or foldover V9, V10, V11
Narrow picture V9, V10, V11, V13
Vert. off freq. V8
Horiz. off freq. Diode (Horiz.Phase Det.), V9

**LOSS OF PICTURE OR SOUND**
No pic, no sound, has raster V1, V2, V3, Diode (Video Det.), V4
No pic, no sound, has snow V201, V202, V1
No pic, has sound, has raster V4, V14
Has pic, no sound V4, V6, V7
Overloaded picture V5

**SYNC FAILURE**
No vert. sync V5
No horiz. sync V5
No vert. or horiz. sync V5

# ALIGNMENT INSTRUCTIONS

PRE-ALIGNMENT INSTRUCTIONS

Allow a 20 minute warm-up period for the receiver and test equipment.
Suggested Alignment Tools: Al thru Al3 .... GENERAL CEMENT #8282, 8606, 8606-L, 9295, 9440
WALSCO #2526, 2543, 2544, 2545

VIDEO IF ALIGNMENT

Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.

| | SWEEP GENERATOR COUPLING | SWEEP GENERATOR FREQUENCY | MARKER GENERATOR FREQUENCY | CHANNEL | CONNECT SCOPE | ADJUST | REMARKS |
|---|---|---|---|---|---|---|---|
| 1. | High side thru 470mmf to TP-1. Low side to chassis. Connect a 56Ω carbon resistor across sweep output. | 44MC (10MC Swp.) | 39.75MC<br>41.25MC<br>45.75MC | Between any two channels | Vert. Amp. thru 10K to point (A). Low side to chassis. (Across Video Det. load.) | A1, A2 | Set sweep generator output to produce 3 volts peak to peak on scope. Adjust A1 and A2 alternately for maximum gain and symmetry with the 45.75MC marker positioned as shown in Fig. 1. The 39.75MC marker can fall within ±.5MC of the specified frequency. If the desired response cannot be obtained, check to see that the cores are entering their respective windings from opposite ends of the coils. |
| 2. | High side to ungrounded tube shield floating over Mixer-Osc. Low side to chassis. | " | 39.75MC<br>41.25MC<br>47.25MC | " | " | A3, A4, A5, A6 | Connect a clip lead from point (B) to chassis. Connect a clip lead from point (C) to point (D). Use high scope gain and adjust A3 thru A6 for MINIMUM marker amplitudes as in Fig.2. A3 controls 39.75MC marker, A4 controls 41.25MC marker, and A5 and A6 control the 47.25MC marker. |
| 3. | " | " | 41.25MC<br>42.75MC<br>45.0MC<br>45.75MC | " | " | A7, A8, A9 and Mixer Plate Coil | Remove clip lead from point (D) and connect to chassis. Adjust for maximum gain and symmetry of response similar to Fig. 3 with markers as shown. A7 affects low side of curve and A8 affects the high side. Remove clip leads. |

SOUND IF ALIGNMENT

Connect an adjustable attenuator between the antenna and the receiver antenna terminals. Tune in a TV station and adjust the attenuator until the signal is below the limiting level of the Audio Detector as evidenced by a hiss similar to super-regeneration in the sound. Adjust A10, A11, A12, and A13 for maximum sound of best quality. Adjust the Buzz Control for MINIMUM buzz.
If the hiss disappears during alignment, further reduce the signal level until the hiss returns.

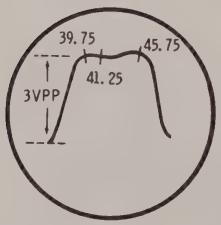


FIG. 1

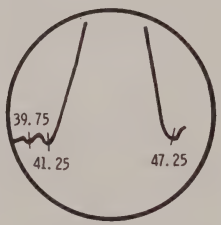


FIG. 2

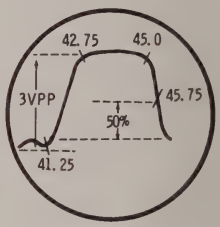
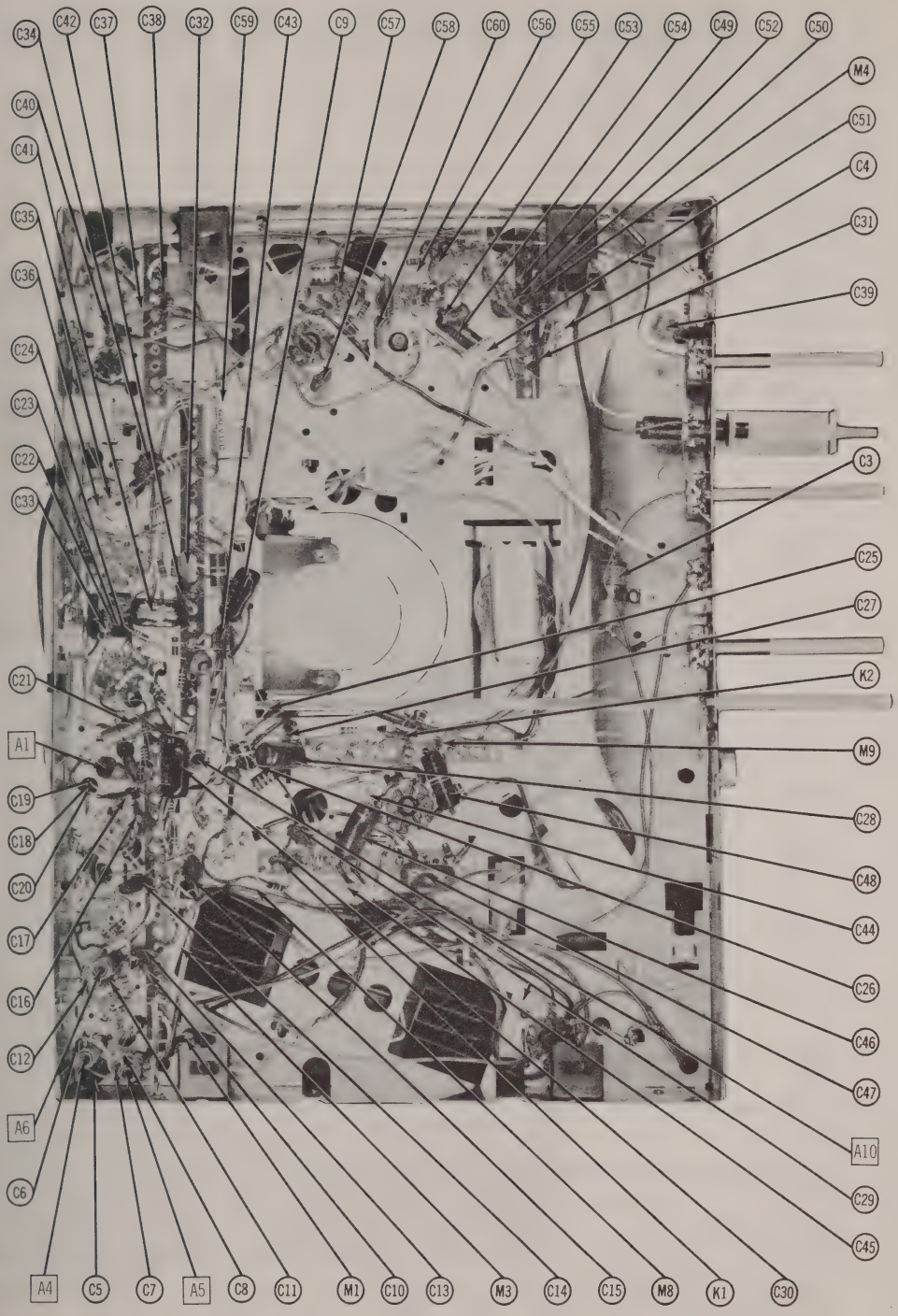


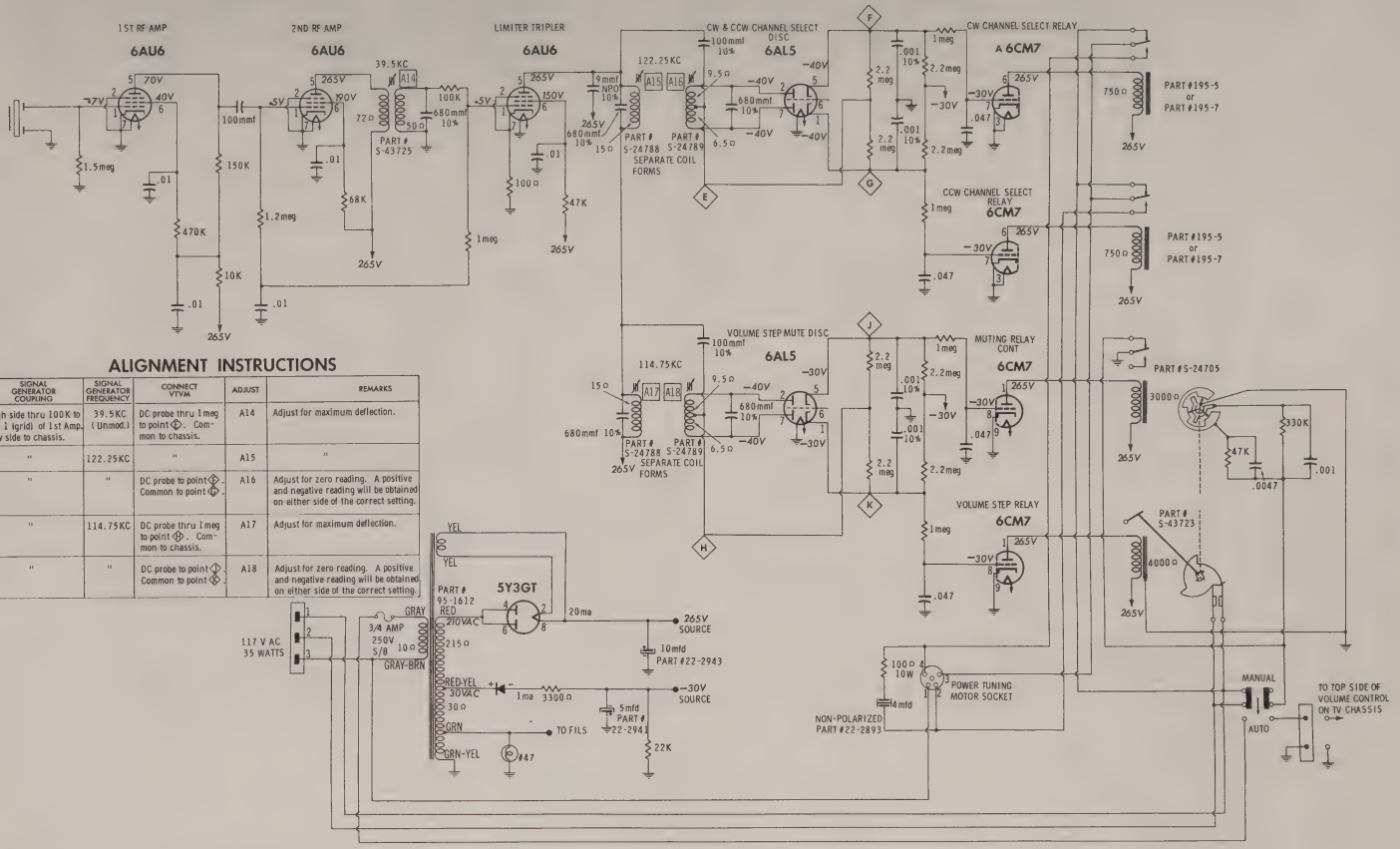
FIG. 3




CHASSIS BOTTOM VIEW - ALIGN., CAPACITOR, MISC. IDENT.

SET 557 FOLDER 2

CHASSIS BOTTOM VIEW - RESISTOR, INDUCTOR, TRANSFORMER IDENT.




## ALIGNMENT INSTRUCTIONS

| | SIGNAL GENERATOR COUPLING | SIGNAL GENERATOR FREQUENCY | CONNECT VTVM | ADJUST | REMARKS |
|---|---|---|---|---|---|
| 1. | High side thru 100K to pin 1 (grid) of 1st Amp. Low side to chassis. | 39.5KC (Unmod.) | DC probe thru 1meg to point ◇. Common to chassis. | A14 | Adjust for maximum deflection. |
| 2. | " | 122.25KC | " | A15 | " |
| 3. | " | " | DC probe to point ◇ Common to point ◇ | A16 | Adjust for zero reading. A positive and negative reading will be obtained on either side of the correct setting. |
| 4. | " | 114.75KC | DC probe thru 1meg to point ◇. Common to chassis. | A17 | Adjust for maximum deflection. |
| 5. | " | " | DC probe to point ◇ Common to point ◇ | A18 | Adjust for zero reading. A positive and negative reading will be obtained on either side of the correct setting. |

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# REMOTE CONTROL RECEIVER S-50264, S-51774, S-51864

ZENITH CHASSIS 16623, 16623Q, 16623U

# VHF TUNER ALIGNMENT INSTRUCTIONS

## 175-173, -174, -175, -176, -180, -182

PRE-ALIGNMENT INSTRUCTIONS

The High Voltage lead should be securely taped and kept away from the chassis.
Allow a 20 minute warm-up period for the receiver and test equipment.
Suggested Alignment Tools: A201 thru A212 ..... GENERAL CEMENT #5009, 8195, 8274, 8275, 8728, 8987
WALSCO #2531
A213, A214, A215..... GENERAL CEMENT #5000, 5003, 8276, 8290
WALSCO #2512, 2525

VHF OSCILLATOR ALIGNMENT

Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.
The generator output lead should be terminated with its characteristic impedance, usually 50 ohms.
Use only enough sweep generator output to provide a usable pattern on scope.
Use 10MC sweep unless otherwise noted.
Connect variable bias to IF AGC line. Adjust bias to obtain response curve which shows no indication of overloading.
Set the Fine Tuning to the center of its range.

| | DUMMY ANTENNA | SWEEP GENERATOR COUPLING | SWEEP GENERATOR FREQUENCY | MARKER GENERATOR FREQUENCY | CHANNEL | CONNECT SCOPE | ADJUST | REMARKS |
|---|---|---|---|---|---|---|---|---|
| 1. | Two 120Ω Carbon Resistors | Across antenna terminals with 120Ω in each lead. | 213MC | 211.25MC<br>215.75MC | 13 | Vert. Amp. thru 47K across Video Det. load. | A201 | Adjust to place sound marker in trap notch as in Fig. 201. Video marker should fall at 50%. |
| | | | 207MC | 205.25MC<br>209.75MC | 12 | | A202 | |
| | | | 201MC | 199.25MC<br>203.75MC | 11 | | A203 | |
| | | | 195MC | 193.25MC<br>197.75MC | 10 | | A204 | |
| | | | 189MC | 187.25MC<br>191.75MC | 9 | | A205 | |
| | | | 183MC | 181.25MC<br>185.75MC | 8 | | A206 | |
| | | | 177MC | 175.25MC<br>179.75MC | 7 | | A207 | |
| | | | 85MC | 83.25MC<br>87.75MC | 6 | | A208 | |
| | | | 79MC | 77.25MC<br>81.75MC | 5 | | A209 | |
| | | | 69MC | 67.25MC<br>71.75MC | 4 | | A210 | |
| | | | 63MC | 61.25MC<br>65.75MC | 3 | | A211 | |
| | | | 57MC | 55.25MC<br>59.75MC | 2 | | A212 | |

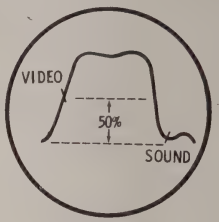


FIG. 201

VHF RF AND MIXER ALIGNMENT

Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.
The generator output lead should be terminated with its characteristic impedance, usually 50 ohms.
Use only enough sweep generator output to provide a usable pattern on scope.
Use 10MC sweep unless otherwise noted.
Coils not containing adjustable cores are adjusted by expanding or compressing coil turns.
Connect the negative lead of a 4.5 volt bias supply to point (1). Positive to chassis.

| | DUMMY ANTENNA | SWEEP GENERATOR COUPLING | SWEEP GENERATOR FREQUENCY | MARKER GENERATOR FREQUENCY | CHANNEL | CONNECT SCOPE | ADJUST | REMARKS |
|---|---|---|---|---|---|---|---|---|
| 2. | Two 120Ω Carbon Resistors | Across antenna terminals with 120Ω in each lead. | 195MC | 193.25MC<br>197.75MC | 10 | Vert. Amp. thru 10K to point (1). Low side to chassis. | A213,<br>A214,<br>A215 | Adjust A213 and A214 for maximum amplitude and symmetry with markers as shown in Fig. 202. Increase bias for MINIMUM amplitude of response curve. Without changing the bias adjust A215 to obtain MINIMUM response on the scope. Restore bias. |
| 3. | " | " | 213MC | 211.25MC<br>215.75MC | 13 | " | A216 | Adjust for maximum amplitude of response similar to Fig. 202. Adjust by compressing or expanding coil turns. |
| | | | 207MC | 205.25MC<br>209.75MC | 12 | | A217 | |
| | | | 201MC | 199.25MC<br>203.75MC | 11 | | A218 | |
| | | | 195MC | 193.25MC<br>197.75MC | 10 | | A219 | |
| | | | 189MC | 187.25MC<br>191.75MC | 9 | | A220 | |
| | | | 183MC | 181.25MC<br>185.75MC | 8 | | A221 | |
| | | | 177MC | 175.25MC<br>179.75MC | 7 | | A222 | |
| | | | 85MC | 83.25MC<br>87.75MC | 6 | | A223 | |
| | | | 79MC | 77.25MC<br>81.75MC | 5 | | A224 | |
| | | | 69MC | 67.25MC<br>71.75MC | 4 | | A225 | |
| | | | 63MC | 61.25MC<br>65.75MC | 3 | | A226 | |
| | | | 57MC | 55.25MC<br>59.75MC | 2 | | A227 | |

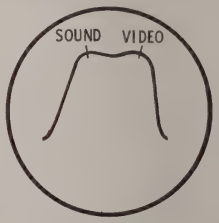
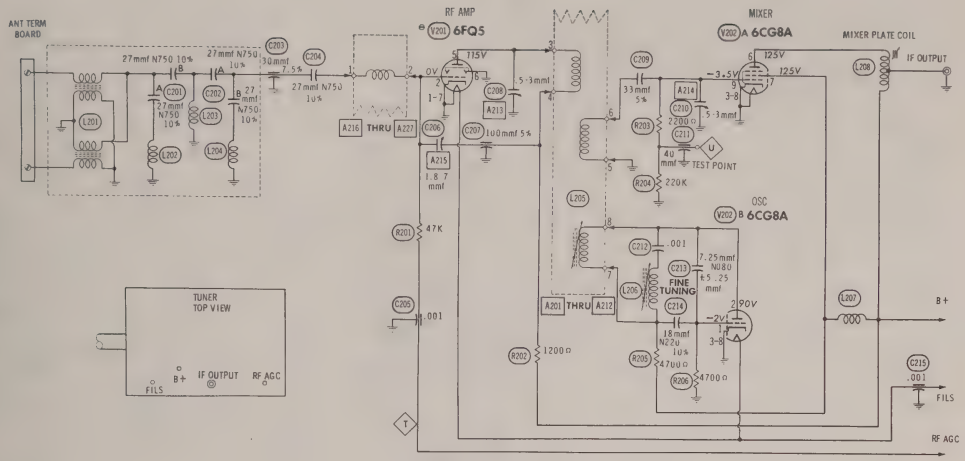


FIG. 202




A PHOTOFACT STANDARD NOTATION SCHEMATIC

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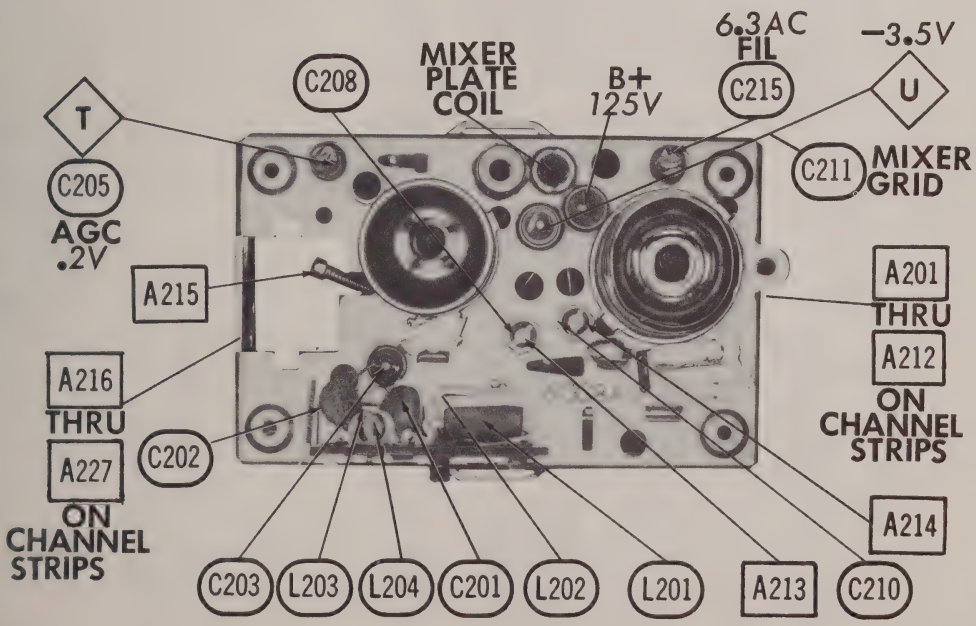
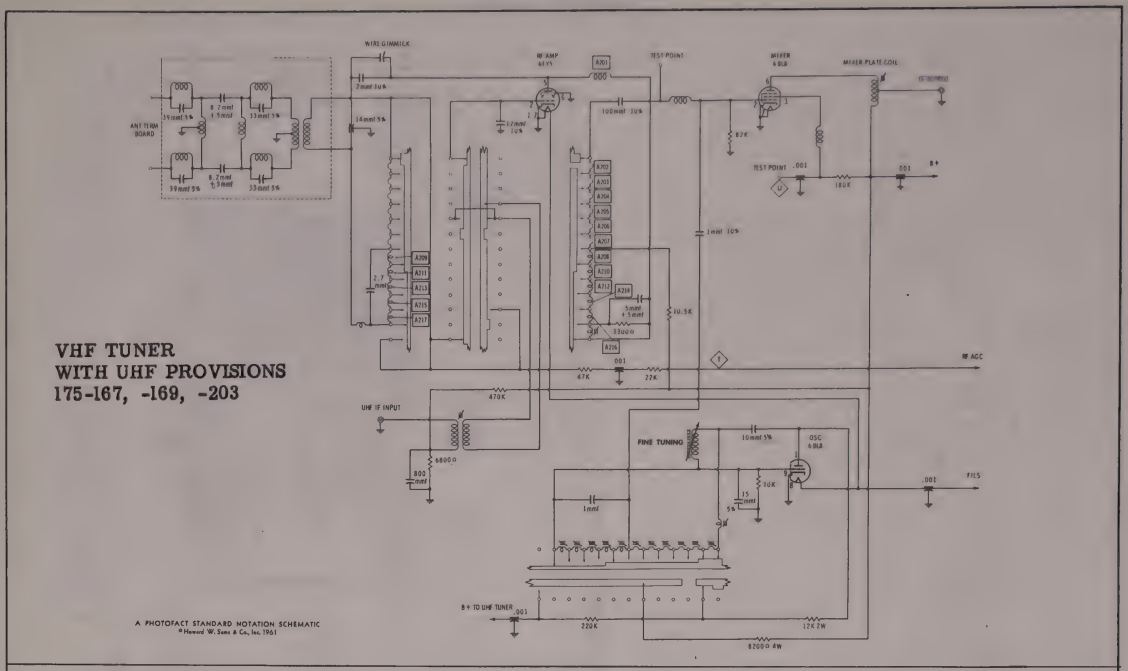
VHF TUNER 175-174, -176, -180, -182

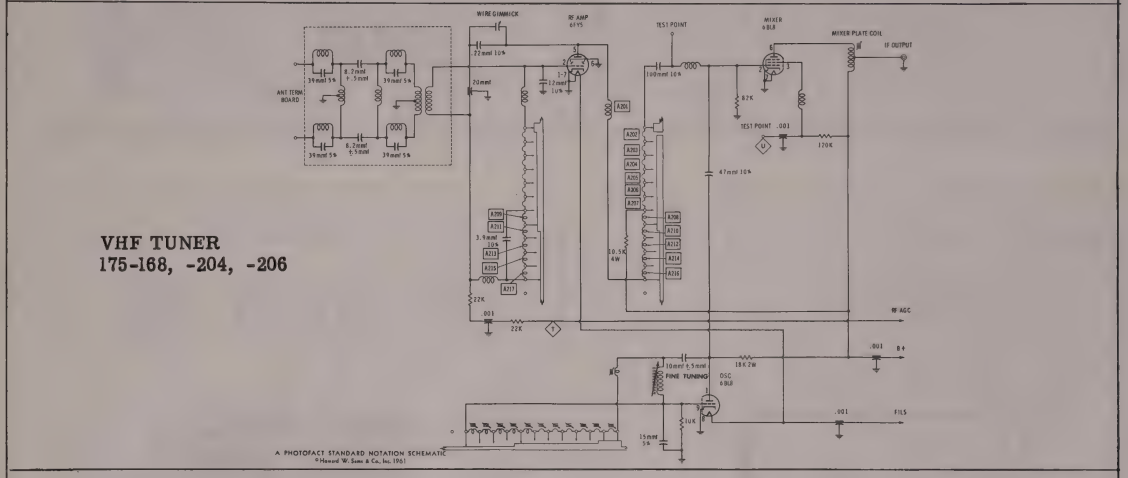



VHF TUNER 175-180 - TOP VIEW

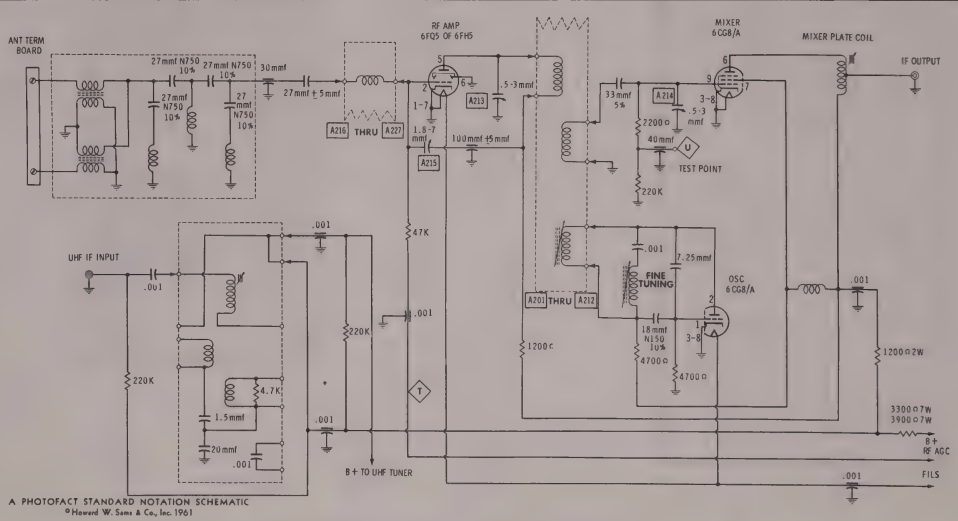
SET 557 FOLDER 2




## VHF TUNER
## WITH UHF PROVISIONS
## 175-167, -169, -203




## VHF TUNER
## 175-168, -204, -206




## VHF TUNER WITH UHF PROVISIONS 175-173, -175

# TV PARTS LIST AND DESCRIPTIONS

## TUBES

| ITEM No. | USE | TYPE | ITEM No. | USE | TYPE |
|---|---|---|---|---|---|
| V1 | 1st Video IF Amp. | 6BZ6 | V7 | Audio Output | 6AQ5A |
| V2 | 2nd Video IF Amp. | 6BZ6 | V8 | Vert. Mult. - Vert. Output | 6EM7 (6EA7) * |
| V3 | 3rd Video IF Amp. | EF184/6EJ7 | V9 | Horiz. AFC - Horiz. Osc. | 6GH8 |
| V4 | Video Output - Sound IF Amp. | 6GN8 | V10 | Horiz. Output | 6DQ6B |
| V5 | AGC Keying - Sync Sep. - Noise Limiter | 6HS8 | V11 | Damper | 6DE4 (6DA4A) * (6AX4GTB) * |
| V6 | Audio Detector | 6BN6 | V12 | HV Rectifier | 1J3 |
| | | | V13 | LV Rectifier | 3DG4 |

* Alternate

## PICTURE TUBE

| ITEM No. | REPLACEMENT DATA | | | | | NOTES |
|---|---|---|---|---|---|---|
| | ZENITH PART No. | GENERAL ELECTRIC PART No. | RCA PART No. | RAYTHEON PART No. | SYLVANIA PART No. | |
| V14 | 23ANP4 | 23ANP4/ATP4 ① | 23ANP4 ① | | 23ANP4 ② | ① Aluminized ② Silver Screen "85" |

## ELECTROLYTIC CAPACITORS

| ITEM No. | RATING | | REPLACEMENT DATA | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | CAP. | VOLT. | ZENITH PART No. | AEROVOX PART No. | CORNELL-DUBILIER PART No. | GENERAL ELECTRIC PART No. | MALLORY PART No. | PYRAMID PART No. | SPRAGUE PART No. |
| C1A | ■40 | 400 | 22-3137 | AFHS4-57-93 | C0890 | XC3-41 | FP333.2 | TMT-3480 | TVL-4863.4 |
| B | ▲80 | 400 | | | | | | | |
| C | ▲100 | 50 | | | | | | | |
| C2A | ▲10 | 400 | 22-3457 | AFH4-59 | D0480 | XC4-1 | FP434.5 | TMQ-4505 | TVL-4652 |
| B | ■4 | 350 | | | | | | | |
| C | ▲4 | 150 | | | | | | | |
| D | 20 | 25 | | | | | | | |
| C3 | 1 | 350 | 22-3495 | PRS1700 | BR145 | QT1-1 | TC595 | TD-2-450 | TVA-1700 |

## FIXED CAPACITORS

| ITEM No. | RATING | | | REMARKS | REPLACEMENT DATA | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | AEROVOX PART No. | CENTRALAB PART No. | CORNELL-DUBILIER PART No. | ELMENCO PART No. | MALLORY PART No. | SPRAGUE PART No. |
| C4 | .15 | 200V | | | P288N-15 | | CUB2P15 | 2DP-3-154 | GEM-2015 | 2TM-P15 |
| C5 | 470 | | | | DI-470 | DD-471 | BYA10T47 | CCD-471 | B-347 | 10TS-T47 |
| C6 | 6 | NPO | ±.5mmf | #22-2381 | | | C10V6C | | | |
| C7 | .01 | | 10% | | DI-10000 | | PM6S1 | CCD-103 | GEM-1611 | 10TS-S10 |
| C8A | 12 | NPO | 5% | | | TCZ-12 | C10Q12C | CCTO-120 | CNO-412 | 10TCC-Q12 |
| B | 12 | NPO | 5% | | | TCZ-12 | C10Q12C | CCTO-120 | CNO-412 | 10TCC-Q12 |
| C9 | .15 | 200V | | | P288N-15 | | CUB2P15 | 2DP-3-154 | GEM-2015 | 2TM-P15 |
| C10 | .01 | | | | BPD-01 | DD-103 | BYA10S1 | CCD-103 | B-110 | 5HK-S10 |
| C11 | 7 | NPO | ±.5mmf | | NPO-DI 6.8 | DTZ-6R8 | C10V7C | CCTO-6R8 | CNO-568 | 10TCC-V68 |
| C12 | 1 | | 10% | | NPO-SI 1.0 | TCZ-1 | | | CNO-510 | 10TCC-V10 |
| C13A | .001 | | 10% | | DI-1000 | DD-102 | PM6D1 | CCD-102 | GP210 | 10TS-D10 |
| B | .001 | | 10% | | DI-1000 | DD-102 | PM6D1 | CCD-102 | GP210 | 10TS-D10 |
| C14A | .001 | | 10% | | DI-1000 | DD-102 | PM6D1 | CCD-102 | GP210 | 10TS-D10 |
| B | .001 | | 10% | | DI-1000 | DD-102 | PM6D1 | CCD-102 | GP210 | 10TS-D10 |
| C15 | 100 | | | | DI-100 | DD-101 | L10T1 | CCD-101 | GP310 | 10TS-T10 |
| C16 | .0022 | | 10% | | DI-2200 | | PM6D22 | CCD-222 | GP222 | 10TS-D22 |
| C17 | .001 | | 10% | | DI-1000 | DD-102 | PM6D1 | CCD-102 * | GP210 | 10TS-D10 |
| C18 | 5.5 | N470 | ±.5mmf | #22-3221 | | | | | | |
| C19 | 4.7 | | | | NPO-SI 4.7 | TCZ-4R7 | C10V47C | CCTO-4R7 | CNO-547 | 10TCC-V47 |
| C20 | 4.7 | | | | NPO-SI 4.7 | TCZ-4R7 | C10V47C | CCTO-4R7 | CNO-547 | 10TCC-V47 |
| C21 | .033 | 200V | 10% | | V84C2S33-10% | | PM6S33 | 4DP-2-333 * | GEM-1613 | 6TM-S33 |
| C22 | 47 | N75 | 5% | #22-2467 | | | | | | |
| C23 | 50 | N750 | | | N750-DI 47 | TCN-50 | C10Q5U | CCTN-470 | CN7-447 | 10TCU-Q47 |
| C24 | 3.3 | | 10% | | NPO-SI 3.3 | TCZ-3R3 | C10V33C | CCTO-3R3 | CNO-533 | 10TCC-V33 |
| C25 | 27 | N750 | 10% | | N750-DI 27 | TCN-27 | C10Q27U | CCTN-270 | CN7-427 | 10TCU-Q27 |
| C26 | 10 | N330 | 10% | #22-3066 | | | | | * | 10TCS-Q10 |
| C27 | 50 | N750 | | | N750-DI 25 | TCN-50 | C10Q5U | CCTO-470 | CN7-447 | 10TCU-Q47 |
| C28 | .1 | 400V | | | P488N-1 | DF-104 | CUB4P1 | 4DP-3-104 | GEM-401 | 4TM-P10 |
| C29 | .001 | | | | BPD-001 | DD-102 | BYA10D1 | CCD-102 | B-210 | 5HK-D10 |
| C30 | .1 | 400V | | | P488N-1 | DF-104 | CUB4P1 | 4DP-3-104 | GEM-401 | 4TM-P10 |
| C31 | .001 | | 10% | | DI-1000 | DD-102 | PM6D1 | CCD-102 | GP210 | 10TS-D10 |
| C32 | .01 | | | | BPD-01 | DD-103 | BYA10D1 | CCD-103 | B-110 | 5HK-S10 |
| C33 | 4.3 | | 5% | #22-3315 | | | | | | |
| C34A | .001 | | 10% | | DI-1000 | DD-102 | PM6D1 | CCD-102 | GP210 | 10TS-D10 |
| B | .001 | | 10% | | DI-1000 | DD-102 | PM6D1 | CCD-102 * | GP210 | 10TS-D10 |
| C35 | 7.5 | | 10% | #22-2742 | | | | | | |
| C36 | 20 | N75 | 10% | #22-3139 | | | | | | |
| C37 | 470 | | | | DI-470 | DD-471 | BYA10T47 | CCD-471 | B-347 | 10TS-T47 |
| C38 | .01 | | | | BPD-01 | DD-103 | BYA10S1 | CCD-103 | B-110 | 5HK-S10 |
| C39 | .0022 | | | | BPD-0022 | DD-222 | BYA10D22 | CCD-222 | B-222 | 5HK-D22 |
| C40 | .0022 | | | | BPD-0022 | DD-222 | BYA10D22 | CCD-222 | B-222 | 5HK-D22 |
| C41 | .1 | 400V | | | P488N-1 | DF-104 | CUB4P1 | 4DP-3-104 | GEM-401 | 4TM-P10 |
| C42 | .0033 | | | | BPD-0033 | DD-332 | BYA10D33 | CCD-332 | B-233 | 5HK-D33 |
| C43 | 470 | | | | DI-470 | DD-471 | BYA10T47 | CCD-471 | B-347 | 10TS-T47 |
| C44 | .0068 | 200V | 10% | | V84C2D68-10% | | PM6D68 | 6DP-1-682 | GEM-16268 | 6TM-D68 |
| C45 | .022 | 400V | 10% | | V84C4S22-10% | | PM6D68 | 4DP-2-223 | GEM-16268 | 6TM-D68 |
| C46 | .1 | 600V | | | P688N-1 | DF-104 | CUB6P1 | 6DP-4-104 | GEM-601 | 6TM-P10 |
| C47 | .1 | 400V | | | P488N-1 | DF-104 | CUB4P1 | 4DP-3-104 | GEM-401 | 4TM-P10 |
| C48 | .015 | 1000V | 10% | | P1084CM-018 | | DPMS16S15 | 16DP-4-153 | | 10TM-S15 |
| C49A | 51 | | | | DI-50 | DD-500 | L10Q5 | CCD-500 | GP450 | 10TS-Q50 |
| B | 51 | | | | DI-50 | DD-500 | L10Q5 | CCD-500 | GP450 | 10TS-Q50 |
| C50A | .001 | | 10% | | DI-1000 | DD-102 | PM6D1 | CCD-102 | GP210 | 10TS-D10 |
| B | .001 | | 10% | | DI-1000 | DD-102 | PM6D1 | CCD-102 | GP210 | 10TS-D10 |
| C51 | .047 | 200V | | | P288N-047 | DD-503 | CUB2S47 | 4DP-3-473 | GEM-4147 | 2TM-S47 |
| C52 | 470 | | | | DI-470 | DD-471 | BYA10T47 | CCD-471 | B-347 | 10TS-T47 |
| C53 | 680 | | 10% | | 1469-00068 | | 5R5T68 | CM-19B-681K | MCJ249 | MS-368 |
| C54 | .0033 | 400V | 10% | | V84C4D33-10% | | PM6D33 | 6DP-1-332 | JL-233 | 6TM-D33 |
| C55 | 470 | | | | DI-470 | DD-471 | BYA10T47 | CCD-471 | B-347 | 10TS-T47 |
| C56 | .01 | | | | BPD-01 | DD-103 | BYA10S1 | CCD-103 | B-110 | 5HK-S10 |
| C57A | .0015 | | 10% | | DI-1500 | DD-152 | PM6D15 | CCD-152 | GP215 | 10TS-D15 |
| B | .0015 | | 10% | | DI-1500 | DD-152 | PM6D15 | CCD-152 | GP215 | 10TS-D15 |
| C58 | .01 | | | | BPD-01 | DD-103 | BYA10S1 | CCD-103 | B-110 | 5HK-S10 |
| C59 | .1 | 600V | | | P688N-1 | DF-104 | CUB6P1 | 6DP-4-104 | GEM-601 | 6TM-P10 |

## FIXED CAPACITORS (cont)

| ITEM No. | RATING | REMARKS | REPLACEMENT DATA: AEROVOX PART No. | CENTRALAB PART No. | CORNELL DUBILIER PART No. | ELMENCO PART No. | MALLORY PART No. | SPRAGUE PART No. |
|---|---|---|---|---|---|---|---|---|
| C80 | 110 4000V Y1500 10% | #22-2694 | | | | | | |
| C81 | 68 2000V 10% | | | | HVA20Q68 | | 2DY-468 | |

# Zenith Part Number
* Not normally in distributor's stock. Available thru distributor on order to manufacturer.

## CONTROLS

| ITEM No. | RATING: RESISTANCE | RATING: WATTS | REPLACEMENT DATA: ZENITH PART No. | CENTRALAB PART No. | CLAROSTAT PART No. | CTS-IRC PART No. | MALLORY PART No. | INSTALLATION NOTES |
|---|---|---|---|---|---|---|---|---|
| R1A | 1meg | ½ | 63-4661 | | APL-697 | C47S-1meg-S | B11-137 * | FP16L | Volume |
| B | Shaft | | | | AK-33 | R8-3/16 | Not Req. | DS-37 | |
| C | Switch | | | | Not Req. | Not Req. | SK8 * | Not Req. | Push-Pull Off-On |
| R2 | 1meg | ½ | 63-4459 | | TT-84 | B47-1meg-S | HLC-3 | EU-59 | Focus |
| R3A | 1meg | ½ | 63-4468 | | B-70 | A47-1meg-Z | Q13-137 | U53 | Tone |
| B | Shaft | | | | Not Req. | [illegible]-3 | Not Req. | Not Req. | |
| R4A | 750K | ½ | 63-4486 | | B-88 | A47-750K-S | Q1-138 | U54 | Vert. Hold |
| B | Shaft | | | | Not Req. | [illegible]-3 | Not Req. | Not Req. | |
| R5 | 5meg | ½ | 63-4660 | | TT-87 | B47-5meg-S | HLC-5 | FTA36L | Vert. Size (Height) |
| R6A | 250K | ½ | 63-4487 | | B-51 | A47-250K-Z | Q13-130 | U44 | Brightness |
| B | Shaft | | | | Not Req. | [illegible]-3 | Not Req. | Not Req. | |
| R7 | 30K | ½ | 63-4489 | | | | | | Contrast |
| | 10K Tap | | | | | | | | |
| R8 | 2000Ω | 2(WW) | 63-4784 | | WN-152 | [illegible]-[illegible] | 113-1500 | FL-1K | Vert. Linearity |
| | 650Ω Stop | | | | ** | ** | ** | ** | |
| R9A | 10K | ½ | 63-4095 | | TT-14 | B47-10K-S | B11-116 | TA14L | AGC |
| B | Shaft | | | | Not Req. | Not Req. | TM4 | Not Req. | |
| R10 | 750Ω | 2(WW) | 63-3284 | | WN-751 | 39-500 | 113-750 | FL-750 | [illegible] |
| | 100Ω Stop | | | | ↑ | ↑ | ↑ | ↑ | |
| R11A | 5meg | ½ | 63-4012 | | TT-87 | B47-5meg-Z | B13-141 | FTA36L | Fringe Lock (Sync Stab.) |
| B | Shaft | | | | Not Req. | Not Req. | TM4 | Not Req. | |

* Factory Assembled Part #PRQ13-137 (SK8).
** Use 820Ω, 2W Resistor in series with terminal.
† Use 100Ω, 2W Resistor in series with terminal.

## RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

| ITEM No. | RATING | REPLACEMENT DATA: IRC PART No. | WORKMAN TV PART No. | REMARKS |
|---|---|---|---|---|
| R12 | 4700Ω 7W | PW7-4700 | TW-5Q-4700 | Note 1 |
| R13 | 2.2meg | | | |
| R14 | [illegible] | | | |
| R15 | [illegible] | | | |
| R16 | [illegible] | | | |
| R17 | 33K | | | |
| R18 | [illegible] | | | (27K) * |
| R19 | 220Ω | | | |
| R20 | 56Ω | | | |
| R21 | 56K | | | |
| R22 | 1500Ω | | | |
| R23 | 56K | | | |
| R24 | 220Ω | | | |
| R25 | 22K | | | |
| R26 | 12K | | | |
| R27 | 270K | | | |
| R28 | 3200Ω 1W | | | |
| R29 | 1000Ω | | | |
| R30 | 330Ω | | | |
| R31 | 1800Ω | | | |
| R32 | 39K | | | (27K) * |
| R33 | 7500Ω 5W | PW5-7500 | TW-5Q-7500 | |
| R34 | 22K | | | |
| R35 | 68K | | | |
| R36 | 100K | | | |
| R37 | 15K | | | |
| R38 | 27K 2W | | | |
| R39 | 220K | | | |
| R40 | 150Ω | | | |
| R41 | 3900Ω | | | |
| R42 | 82K | | | |
| R43 | 39K | | | |
| R44 | 330K | | | |
| R45 | 15K | | | |
| R46 | 470K | | | |
| R47 | 470K 1W | | | |
| R48 | 15K | | | |
| R49 | 100K | | | |
| R50 | 330K | | | |
| R51 | 3.3meg | | | |

| ITEM No. | RATING | REPLACEMENT DATA: IRC PART No. | WORKMAN TV PART No. | REMARKS |
|---|---|---|---|---|
| R52 | 680K | | | |
| R53 | 10meg | | | |
| R54 | 22K 2W | | | |
| R55 | 82K | | | |
| R56 | 150K | | | |
| R57 | 47K | | | |
| R58 | 100K | | | |
| R59 | 470K 1W | | | |
| R60 | 6800Ω | | | |
| R61 | 27K 2W | | | |
| R62 | 390K | | | |
| R63 | 1000Ω 1W | | | |
| R64 | 680Ω 1W | | | |
| R65 | 330K | | | |
| R66 | 2.2meg | | | |
| R67 | 1000Ω | | | |
| R68 | 2.2meg | | | |
| R69 | 39K | | | |
| R70 | 62K | | | |
| R71 | 560Ω | | | |
| R72 | 560Ω | | | |
| R73 | 100K | | | |
| R74 | 330K | | | |
| R75 | 330K | | | |
| R76 | 1meg | | | |
| R77 | 120K | | | |
| R78 | 100K | | | |
| R79 | 100K | | | |
| R80 | 10meg | | | |
| R81 | 120K 2W | | | |
| R82 | 47K | | | |
| R83 | 18K | | | |
| R84 | 100Ω | | | |
| R85 | 1meg | | | |
| R86 | 100Ω | | | |
| R87 | 6200Ω 3W | PW3-8200 | 3W-8Q-8200 | |
| R88 | 1000Ω | | | |
| R89 | 6.8Ω | | | |
| R90 | 22K 1W | | | |
| R91 | 220K | | | #63-4726 |
| R92 | | | | |

Note 1. Some versions may use 5200Ω 7W or 4700Ω 7W (Value depends on B+ Source Voltage).
* Alternate Value # Zenith Part Number

## COILS (RF-IF)

| ITEM No. | USE | REPLACEMENT DATA: ZENITH PART No. | Merit PART No. | Muller PART No. | Stancor PART No. | Workman TV PART No. | NOTES |
|---|---|---|---|---|---|---|---|
| L1A | 1st Video IF | S-52410 ① | TV-132 | 6226 | RTC-8626 | T218 | ①Complete Assembly, Part #S-46594. |
| B | 41.25 MC Trap | | | 6226 | RTC-8626 | T218 | |
| L2A | 39.75MC Trap | S-41883 | TV-152 | [illegible] | RTC-8556 | T216 | ②Complete Assembly, Part #S-47987. |
| B | 47.25MC Trap | | TV-153 | 6225 | RTC-8556 | T216 | |
| L3A | 2nd Video IF | S-41889 | | [illegible] | RTC-8553 | T225 | ③Wound on 8200Ω Resistor. |
| B | 47.25MC Trap | | | | | | |
| L3 | 3rd Video IF | S-51843 | TV-130 | [illegible] | RTC-8555 | T217 | ④Complete Assembly, Part #S-48892. |
| L4 | 4th Video IF | S-47968 ② | | | | TC237 | |
| L5 | Peaking (90uh) | S-41879 | TV-181 | 6177 | RTC-8594 | T304 | ⑤Wound on 5600Ω Resistor. |
| L7 | RF Choke (6uh) | S-21888 | BC-565 | 4610 | RTC-8520 | T859 | |
| L8 | Peaking (175uh) | S-52645 ③ | TV-184 † | 6180 † | RTC-8579 † | T310 | ⑥Complete Assembly, Part #S-43717. |
| L9A | 4.5MC Trap | S-50341 ④ | TV-120 | 1482 IFT | RTC-9056 | T253 | † Parallel with 8200Ω Resistor. |
| B | 1st Sound IF | | | | | | |
| L10 | Peaking (250uh) | S-18011 | TV-185 | [illegible] | RTC-8598 | T315 | * Parallel with 5600Ω Resistor. |
| L11 | Peaking (170uh) | S-43618 ⑤ | TV-184 * | 6180 * | RTC-8597 * | T310 * | |
| L12 | 2nd Sound IF | S-41899 ⑥ | TV-149 | | | | |
| L13 | Quadrature | S-47702 | TV-121 | [illegible] | RTC-8605 | T251 | |
| L14 | RF Choke (10uh) | S-22777 | BC-566 | [illegible] | RTC-8522 | T860 | |



# TV PARTS LIST AND DESCRIPTIONS (Continued)

## COILS (SWEEP CIRCUITS)

| ITEM No. | USE | REPLACEMENT DATA: ZENITH PART No. | Merit PART No. | Miller PART No. | Stancor PART No. | Thordarson PART No. | Triad PART No. | Workman TV PART No. | NOTES |
|---|---|---|---|---|---|---|---|---|---|
| L15 | Horiz. Osc. (Horiz. Hold) | S-45678 | | | | HS-7 | | T104 | |

## FILTER CHOKE

| ITEM No. | RATINGS: CURRENT (Measured) | RATINGS: DC RES. | RATINGS: INDUCTANCE (0 CURRENT 1000 ~/~) | REPLACEMENT DATA: ZENITH PART No. | Merit PART No. | Stancor PART No. | Thordarson PART No. | Triad PART No. | NOTES |
|---|---|---|---|---|---|---|---|---|---|
| L16 | .270A | 45Ω | 1.3 Hy. | 95-1681 | C-2996 | C-2343 | 26C44 | C-29X | |

## TRANSFORMER (POWER)

| ITEM No. | RATING | REPLACEMENT DATA: ZENITH PART No. | Merit PART No. | Stancor PART No. | Thordarson PART No. | Triad PART No. | NOTES |
|---|---|---|---|---|---|---|---|
| | PRI. SEC. 1 SEC. 2 | | | | | | |
| T1 | 117V 500 VCT 3V<br>① 1.6A ② .275A ③ 3A<br>DC | 95-1815 | | | | R-92A | |
| | SEC. 3 SEC. 4 SEC. 5 | | | | | | |
| | 6.3V<br>④ 8.1A | | | | | | |

## TRANSFORMERS (SWEEP CIRCUITS)

| ITEM No. | USE | REPLACEMENT DATA: ZENITH PART No. | Merit PART No. | Stancor PART No. | Thordarson PART No. | Triad PART No. | NOTES |
|---|---|---|---|---|---|---|---|
| T2 | Vert. Output | 95-1656 | A-3821 | A-8149 | 26S75 ① | A-131X | |
| T3 | Yoke (Horiz. 13MH) (82°) (Vert. 45MH) | 95-1768 † | MDF-124 | DY-39A ② | Y-39 ② | Y-82-1 | |
| | Rear Cover and Centering Device | S-23237 | | | | | |
| T4 | Horiz. Output | S-50095 | HVO-188 | | | D-201 | |

① Use 6 to 1 Turns Ratio, connect as autoformer. † Includes R92
② Connect same as original. (Use original 1K ½ watt Resistor and Thermal Resistor).

## TRANSFORMER (AUDIO OUTPUT)

| ITEM No. | IMPEDANCE: PRI. | IMPEDANCE: SEC. | REPLACEMENT DATA: ZENITH PART No. | Merit PART No. | Stancor PART No. | Thordarson PART No. | Triad PART No. | NOTES |
|---|---|---|---|---|---|---|---|---|
| T5 | 8600Ω | 3-4Ω | 95-1569 | A-2900 | A-3850 | 24S52 | S-17X | |

## SPEAKER

| ITEM No. | TYPE: SIZE | TYPE: FIELD | TYPE: V. C. IMP. | REPLACEMENT DATA: ZENITH PART No. | QUAM PART No. | NOTES |
|---|---|---|---|---|---|---|
| SP1 | 5" x 7" | PM | 6-8Ω | 49-893 ① | 57AIZ6.5 | ①Used in Models G3350R, W, E. |
| SP2 | 5" x 7" | PM | 6-8Ω | 49-893 ① | 57AIZ6.5 | ②Used in Models G2705R, Ry, Y, YU; G2730E, EU, M, MU, R, RU, W, WU. |
| | | PM | | 49-943 ② | | |
| | | PM | | 49-943 ③ | | ③Used in Models G2707R, RU, Y, YU. |
| | | PM | | 49-907 ④ | | ④Used in Models G2735L, LU, R, RU, W, WU. |
| | | PM | | 49-886 ⑤ | | ⑤Used in Models G2737E, EU, R, RU, W, WU; G2738E, EU, M, MU, R, RU, W, WU; G3641E, M, R, W; G3346E, M, R, W. |
| | | PM | | 49-851 ⑥ | 69A3 | |
| | | PM | | 49-948 ⑦ | | |
| | | PM | | 49-949 ⑧ | | ⑥Used in Models G2740H, HU, R, RU, W, WU; G2752R, RU, Y, YU, W, WU; G3348R, W. |
| | 3½" | PM | 10-12Ω | 49-782 ⑨ | 3AI5TZ12 | ⑦Two used in Models G2780E, EU, R, RU, W, WU. |
| | 10" | PM | 6-8Ω | 49-914 ⑩ | 10AAAZ6.4 | ⑧Two used in Models G2766E, EU, M, MU, R, RU, W, WU; G2787W, WU. |

## COMPONENT COMBINATIONS

| ITEM No. | USE | DESCRIPTION | ZENITH PART No. | REPLACEMENT DATA |
|---|---|---|---|---|
| K1 | Vert. Integrator | | 87-8 | |
| K2 | Vert. Feedback | | 87-7 | |

## FUSES

| ITEM No. | TYPE | RATING | REPLACEMENT DATA: ZENITH PART No. FUSE | ZENITH PART No. HOLDER | LITTELFUSE PART No. FUSE | LITTELFUSE PART No. HOLDER | BUSS PART No. FUSE | BUSS PART No. HOLDER |
|---|---|---|---|---|---|---|---|---|
| M1 | N | 7/10A 250V 8/B | 136-38 | 62-21 | 333.700 (N 7/10 250V 8/B) | 346010 | N 7/10 | HN ½ - 3/4 |
| M2 | 3AG | 5A 125V 8/B | 136-46 | 83-3575 | 313005 (3AG 5A 125V 8/B) | 357001 | MDX5 | 4405 |
| M3 | 1½" | length #24 wire | | | | | | |

## SIGNAL DIODES

| ITEM No. | ORIG. TYPE | REPLACEMENT DATA: ZENITH PART No. | GENERAL ELECTRIC PART No. | RAYTHEON PART No. | NOTES |
|---|---|---|---|---|---|
| M4 | 1N295 | 103-32 * | 6GC1 | 1N295 | Dual Selenium, Common Cathode Type, Horiz. AFC Video Detector |
| M5 | | 103-23 | | | * Alternate Pt. #103-20. |

## MISCELLANEOUS

| ITEM No. | PART NAME | ZENITH PART No. | NOTES |
|---|---|---|---|
| M6 | Tuner | 175-180 | VHF, Complete, Used in Models G3341E, M, R, W; G3346E, M, R, W. |
| | | | STANDARD COIL REPLACMENT #GG-4220A (Use original tuner shaft). |

## MISCELLANEOUS (cont)

| ITEM No. | PART NAME | ZENITH PART No. | NOTES |
|---|---|---|---|
| | Tuner | 175-174 | VHF Complete, Used in Models G2738E, M, R; G2740H, R, W; G2786E, M, R, W, G2787W, G2788E, R, W. |
| | Tuner | 175-182 | VHF Complete, Used in Models G3348R, W; G3350E, R, W. |
| | Tuner | 175-178 | VHF Complete, Used in Models G2730E, R, W, M; G2735L, R, W; G2737E, R, W; G2752R, W, Y. |
| | Tuner | 175-175 | VHF with UHF Provisions, Models G2730YU, RU, WU, MU; G2735LU, RU, WU; G2737EU, RU, WU; G2752RU, WU, YU. |
| | Tuner | 175-173 | VHF with UHF Provisions, Models G2738YU, MU, RU, WU; G2740HU, RU, WU; G2786EU, RU, WU; G2796RU, MU, RU, WU; G2787WU. |
| | Tuner | 175-204 or 175-188 | VHF Complete, Models G2705R, Y. |
| | Tuner | 175-203 or 175-187 | VHF with UHF Provisions, Models G2705RU, YU. |
| | Tuner | 175-206 | VHF Complete, Models G-2707R, Y. |
| | Tuner | 175-189 | VHF with UHF Provisions, Models G2707RU, YU. |
| | Tuner | 175-8 | UHF |
| M7 | Magnet | S-46005 | Corrector (Anti-Pincushion), 2 required. |
| M8 | Spark Gap | 91-1681-8 | |
| M9 | Width Sleeve | | |
| M10 | Switch | S-44018 * | Channel Selector (Power Tuning) |
| M11 | Switch | S-41495 * | Motor Switch Assembly (Power Tuning) |

* For Chassis using Remote Control Receiver S-51774, S-[illegible]

## WIRING DATA

| | |
|---|---|
| High Voltage Lead | Use BELDEN No. [illegible] |
| Shielded Hook-up Wire | Use BELDEN No. 8685 (Single Conductor) 8738 (Two Conductor) 8530 (Solid) Available in Ten Colors 8524 (Stranded) Available in Ten Colors |
| General-use Unshielded Hook-up Wire | Use BELDEN No. 8054 |
| Power Cord (Interlock Type) | Use BELDEN No. 8225 |
| 300Ω Tuner Input Lead | Use BELDEN No. 8230 or 8275 |
| 300Ω Antenna Lead-in | Use BELDEN No. 8464 (Flat) or 8484 (Round) - 4 Conductor 8485 (Round) - 5 Conductor 8486 (Round) - 8 Conductor |
| Antenna Rotor Cable | Use BELDEN No. |

# VHF TUNER PARTS LIST AND DESCRIPTIONS

## 175—174, —176, —180, —182

### TUBES

| ITEM No. | USE | GENERAL ELECTRIC * RAYTHEON * SYLVANIA * TYPE |
|---|---|---|
| V201 | RF Amp. | 6[illegible] (6FH5) * |

| ITEM No. | USE | TYPE |
|---|---|---|
| V202 | Mixer - Osc. | 6CG8A |

* Alternate

### FIXED CAPACITORS

| ITEM No. | RATING | | | REMARKS | REPLACEMENT DATA: AEROVOX PART No. | CENTRALAB PART No. | CORNELL DUBILIER PART No. | ELMENCO PART No. | MALLORY PART No. | SPRAGUE PART No. |
|---|---|---|---|---|---|---|---|---|---|---|
| C201A | 27 | N750 | 10% | | N750-DI 25 | TCN-27 | C10Q27U | CCTN-270 | CN7-427 | 10TCU-Q27 |
| B | 27 | N750 | 10% | | N750-DI 25 | TCN-27 | C10Q27U | CCTN-270 | CN7-427 | 10TCU-Q27 |
| C202A | 27 | N750 | 10% | | N750-DI 25 | TCN-27 | C10Q27U | CCTN-270 | CN7-427 | 10TCU-Q27 |
| B | 27 | N750 | 10% | | N750-DI 25 | TCN-27 | C10Q27U | CCTN-270 | CN7-427 | 10TCU-Q27 |
| C203 | 30 | | 7.5% | #22-3111 | | | | | | |
| C204 | 27 | N750 | 5% | | | TCN-27 | C10Q27U | CCTN-270 | CN7-427 | 10TCU-Q27 |
| C205 | .001 | | | | EF-001 | MFT-1000 | | CCF-102 | CT280A | |
| C206 | 1.8-7 | | | #22-3191 | | 829-7 | | | | |
| C207 | 100 | | 5% | | EF-0001 | MFT-100 | | | | |
| C208 | 5-3 | | | | | 829-3 | | CV-1 | CT565 | |
| C209 | 33 | | 5% | | | TCZ-33 | C10Q33C | CCTQ-330 | CNQ-433 | 10TCC-Q33 |
| C210 | 5-3 | | | | | 829-3 | | CV-1 | CT565 | |
| C211 | 40 | | | #22-3112 | | | | | | |
| C212 | .001 | | | | BPD-001 | DD-102 | BYA10DI | CCD-102 | GP210 | 10TB-D10 |
| C213 | 7.35 N080 +.5-.25mmf | | | #22-3460 | | | | " | | |
| C214 | 18 | N220 | 10% | #22-3025 | | | | " | | 10TCR-Q18 |
| C215 | .001 | | | | EF-001 | MFT-100 | | CCF-102 | CT280A | |

# Zenith Part Number
* Not normally in distributor's stock. Available thru distributor on order to manufacturer.

### RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

| ITEM No. | RATING | REPLACEMENT DATA: IRC PART No | WORKMAN TV PART No. | REMARKS |
|---|---|---|---|---|
| R201 | 47K | | | |
| R202 | 1200Ω | | | |
| R203 | 2200Ω | | | |

| ITEM No. | RATING | REPLACEMENT DATA: IRC PART No | WORKMAN TV PART No. | REMARKS |
|---|---|---|---|---|
| R204 | 220K | | | |
| R205 | 4700Ω | | | |
| R206 | 4700Ω | | | |

### COILS (RF-IF)

| ITEM No. | USE | ZENITH PART No. | NOTES |
|---|---|---|---|
| L201 | Ant. Trans. | S-51973 | Includes Assy. |
| L202 | RF Choke | 20-762 | |
| L203 | RF Choke | 20-763 | |
| L204 | RF Choke | 20-762 | |
| L205A | Ant., RF, Mixer & Osc. | 174-22 | Channel 2 |
| B | " | 174-23 | Channel 3 |
| C | " | 174-24 | Channel 4 |
| D | " | 174-25 | Channel 5 |
| E | " | 174-26 | Channel 6 |
| F | " | 174-27 | Channel 7 |

| ITEM No. | USE | ZENITH PART No. | NOTES |
|---|---|---|---|
| L205G | Ant., RF, Mixer & Osc. | 174-28 | Channel 8 |
| H | " | 174-29 | Channel 9 |
| J | " | 174-30 | Channel 10 |
| K | " | 174-31 | Channel 11 |
| L | " | 174-32 | Channel 12 |
| M | " | 174-33 | Channel 13 |
| L206 | Fine Tuning | S-47481 | |
| L207 | RF Choke | 20-758 | |
| L208 | Mixer Plate | S-47370 | |

ZENITH CHASSIS 16G23, 16G23Q, 16G33U

FOLDER 2

## CABINET PARTS

(When Ordering Cabinet Parts, Specify Model, Chassis & Color)

| DESCRIPTION | PART NO. | MODEL NO. | F2710YZ, YZU | F2712EZ, EZU | F2712RZ, RZU | F2712WZ, WZU | F2735E, EU | F2735R, RU | F2735W, WU | F2738E, EU | F2738M, MU | F2738R, RU | F2738W, WU | F2739E, EU | F2739W, WU | F2740E, EU | F2740R, RU | F2740W, WU | F2755H, HU | F2755M, MU | F2755R, RU | F2755W, WU | F2756E, EU | F2756R, RU | F2756W, WU | F2786E, EU | F2786R, RU | F2786W, WU | F3342E | F3342R | F3342W | F3348R | F3348W | F3350E | F3350R | F3350W | F3353W | F3354M | F3354R |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Knob-VHF Channel Selector | 46-2530 | | X | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Knob- " | 46-2510 | | | X | X | X | X | X | X | | | | | | | X | X | X | X | X | X | X | X | X | X | X | X | | | | | | | | | | | |
| Knob- " | 46-2341 | | | | | | | | | X | X | X | X | X | X | | | | | | | | | | | | | | | | | | | | | | | |
| Knob- " | S-47420 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | X | | | | X | X |
| Knob- " | S-50517 | | | | | | | | | | | | | | | | | | | | | | | | | | | X | X | X | X | X | X | X | X | X | X | X |
| • Knob-UHF Channel Selector | S-48229 | | X | X | X | X | X | X | X | | | | | | | | | | X | X | X | X | X | X | X | X | X | | | | | | | | | | | |
| • Knob- " | S-46873 | | | | | | | | | X | X | X | X | X | X | X | X | X | | | | | | | | | | | | | | | | | | | | |
| • Knob-UHF Channel Indicator | S-45733 | | | | | | | | | X | X | X | X | X | X | X | X | X | | | | | | | | | | | | | | | | | | | | |
| • Knob- " | S-48228 | | X | X | X | X | X | X | X | | | | | | | | | | X | X | X | X | X | X | X | X | X | X | | | | | | | | | | | |
| Knob-Fine Tuning | S-49930 | | X | X | X | X | X | X | X | | | | | | | X | X | X | X | X | X | X | X | X | X | X | X | | | | | | | | | | | |
| Knob- " | S-49420 | | | | | | | | | X | X | X | X | X | X | | | | | | | | | | | | | | | | | | | | | | | |
| Knob- " | 46-2035 | | | | | | | | | | | | | | | | | | | | | | | | | | | X | X | X | X | X | X | X | X | X | X | X |
| Knob-Volume | S-45716 | | X | X | X | X | X | X | X | | | | | | | X | X | X | X | X | X | X | X | X | X | X | X | | | | | | | | | | | |
| • Knob- " | S-45716 | | | | | | | | | X | X | X | X | X | X | | | | | | | | | | | | | | | | | | | | | | | |
| Knob- " | S-46726 | | | | | | | | | X | X | X | X | X | X | | | | | | | | | | | | | | | | | | | | | | X | X |
| Knob- " | 46-2131 | | | | | | | | | | | | | | | | | | | | | | | | | | | X | X | X | X | X | X | X | X | X | | |
| Knob-Brt., Tone, Vert. Hold | S-50934 | | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X |
| Knob- " | 199-303 | | | | | | | | | | | | | | | | | | | | | | | | | X | X | X | | | | | | | | | | |
| Knob-Contrast | 199-304 | | | | | | | | | | | | | | | | | | | | | | | | | X | X | X | | | | | | | | | | |
| Knob- " | S-50935 | | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | | | | X | X | X | X | X | X | X | X | X | X |
| Knob-Horizontal Hold | 76-1095 | | | | | | | | | | | | | | | | | | | | | | | | | | | | X | X | X | X | X | X | X | X | | |
| Knob-Horizontal Hold | 46-2509 | | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | | | | | | | | | X | X |

• UHF Models

| DESCRIPTION | PART NO. | MODEL NO. | G2705R, RU | G2705Y, YU | G2707R, RU | G2707Y, YU | G2730E, EU | G2730R, RU | G2730W, WU | G2730M, MU | G2735L, LU | G2735R, RU | G2735W, WU | G2737E, EU | G2737R, RU | G2737W, WU | G2738E, EU | G2738M, MU | G2738R, RU | G2738W, WU | G2740H, HU | G2740R, RU | G2740W, WU | G2752R, RU | G2752W, WU | G2752Y, YU | G2786E, EU | G2786R, RU | G2786W, WU | G2786M, MU | G2786R, RU | G2786W, WU | G2787W, WU | G3341E | G3341M | G3341R | G3341W | G3346E | G3346R | G3346W | G3346M | G3348R | G3348W | G3350E | G3350R | G3350W |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Knob-VHF Channel Selector | 46-2530 | | X | X | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Knob- " | 46-2510 | | | | | | X | X | X | X | X | X | X | X | X | | | | | | | | X | X | X | | | | | | | | | | | | | | | | | | | | | | |
| Knob- " | S-50517 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | X | X | X | X | X | X | X | X | | | | | | |
| Knob- " | 46-2695 | | | | | | | | | | | | | | | X | X | X | X | X | X | X | | | | X | X | X | X | X | X | X | | | | | | | | | | | | | | |
| Knob- " | 46-2703 | | | | X | X | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Knob- " | 46-2551 and S-47420 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| • Knob-UHF Channel Selector | S-48229 | | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | | | | | | | | | | | | | | | |
| • Knob-UHF Channel Indicator | S-48228 | | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | | | | | | | | | | | | | | | |
| Knob-Fine Tuning | S-49930 | | | | | | X | X | X | X | X | X | X | X | X | | | | | | | | X | X | X | | | | | | | | | | | | | | | | | | | | | | |
| Knob- " | 46-2035 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | X | X | X | X | X | X | X | X | | | | | | |
| Knob- " | S-51107 | | X | X | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Knob- " | S-51956 | | | | X | X | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Knob- " | S-51893 | | | | | | | | | | | | | | | X | X | X | X | X | X | X | | | | X | X | X | X | X | X | | | | | | | | | | | | | | | |
| Knob- " | S-52893 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Knob- " | S-51867 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Knob-Volume | S-45716 | | X | X | X | X | X | X | X | X | X | X | X | | | X | X | X | X | X | X | X | | | | | | | X | X | X | X | X | | | | | | | | | | | | | |
| Knob- " | S-46726 | | | | | | | | | | | | | X | X | X | | | | | | | | | | | | | | | | | | X | X | X | X | X | X | X | X | | | | | |
| Knob- " | S-46716 | | | | | | | | | | | | | | | | | | | | | | | | | | | X | X | X | | | | | | | | | | | | | | | | | |
| Knob-Brt., Tone, Vert. Hold | S-50939 | | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X |
| Knob-Contrast | S-50935 | | X | X | | | X | X | X | X | X | X | X | X | X | | | | | | | | X | X | X | | | | | | | | | X | X | X | X | X | X | | | | | | |
| Knob- " | S-51728 | | | | X | X | | | | | | | | | | X | X | X | X | X | X | X | | | | X | X | X | X | X | X | X | | | | | | | | | | | | X | X | X | X |
| Knob-Horizontal Hold | 46-2509 | | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X |

• UHF Models

## CABINETS

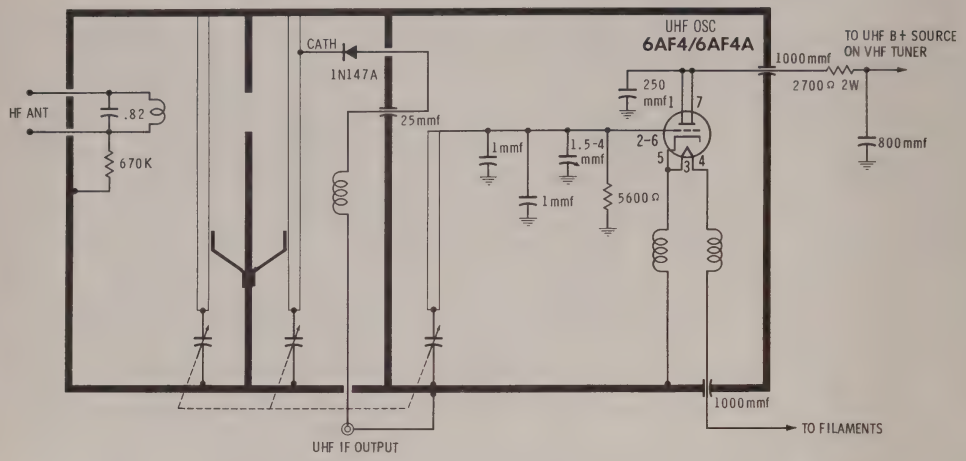
(When Ordering Cabinets Specify Model, Chassis & Color)

"F" MODELS

| PART NO. | MODEL NO. | PART NO. | MODEL NO. |
|---|---|---|---|
| 14-2931 | F2710YZ, YZU | 14-3282 | F2755W, WU |
| 14-2930 | F2712EZ, EZU | 14-3347 | F2756E, EU |
| 14-2929 | F2712RZ, RZU | 14-3346 | F2756R, RU |
| 14-2928 | F2712WZ, WZU | 14-3345 | F2756W, WU |
| 14-3236 | F2735E, EU | 14-3269 | F2786E, EU |
| 14-3235 | F2735R, RU | 14-3268 | F2786R, RU |
| 14-3234 | F2735W, WU | 14-3267 | F2786W, WU |
| 14-3239 | F2738E, EU | 14-3257 | F3342E |
| 14-3245 | F2738M, MU | 14-3256 | F3342R |
| 14-3238 | F2738R, RU | 14-3255 | F3342W |
| 14-3237 | F2738W, WU | 14-3349 | F3348R |
| 14-3398 | F2739E, EU | 14-3348 | F3348W |
| 14-3390 | F2739W, WU | 14-3248 | F3350E |
| 14-3288 | F2740E, EU | 14-3374 | F3350R |
| 14-3287 | F2740R, RU | 14-3373 | F3350W |
| 14-3286 | F2740W, WU | 14-3353 | F3353W |
| 14-3284 | F2755H, HU | 14-3356 | F3354M |
| 14-3285 | F2755M, MU | 14-3354 | F3354R |
| 14-3283 | F2755R, RU | | |

"G" MODELS

| PART NO. | MODEL NO. | PART NO. | MODEL NO. |
|---|---|---|---|
| 14-1932 | G2705R, RU | 14-3491 | G2752Y, YU |
| 14-2936 | G2705Y, YU | 14-3665 | G2780E, EU |
| 14-3463 | G2707R, RU | 14-3664 | G2780R, RU |
| 14-3464 | G2707Y, YU | 14-3663 | G2780W, WU |
| 14-3572 | G2730E, EU | 14-3643 | G2786E, EU |
| 14-3571 | G2730R, RU | 14-3644 | G2786M, MU |
| 14-3570 | G2730W, WU | 14-3642 | G2786R, RU |
| 14-3573 | G2730M, MU | 14-3641 | G2786W, WU |
| 14-3609 | G2735L, LU | 14-3648 | G2787W, WU |
| 14-3235 | G2735R, RU | 14-3677 | G3341E |
| 14-3234 | G2735W, WU | 14-3678 | G3341M |
| 14-3704 | G2737E, EU | 14-3676 | G3341R |
| 14-3703 | G2737R, RU | 14-3675 | G3341W |
| 14-3702 | G2737W, WU | 14-3677 | G3346E |
| 14-3707 | G2738E, EU | 14-3676 | G3346R |
| 14-3708 | G2738M, MU | 14-3675 | G3346W |
| 14-3706 | G2738R, RU | 14-3678 | G3346M |
| 14-3705 | G2738W, WU | 14-3551 | G3348R |
| 14-3523 | G2740H, HU | 14-3550 | G3348W |
| 14-3522 | G2740R, RU | 14-3504 | G3350E |
| 14-3521 | G2740W, WU | 14-3503 | G3350R |
| 14-3490 | G2752R, RU | 14-3502 | G3350W |
| 14-3489 | G2752W, WU | | |

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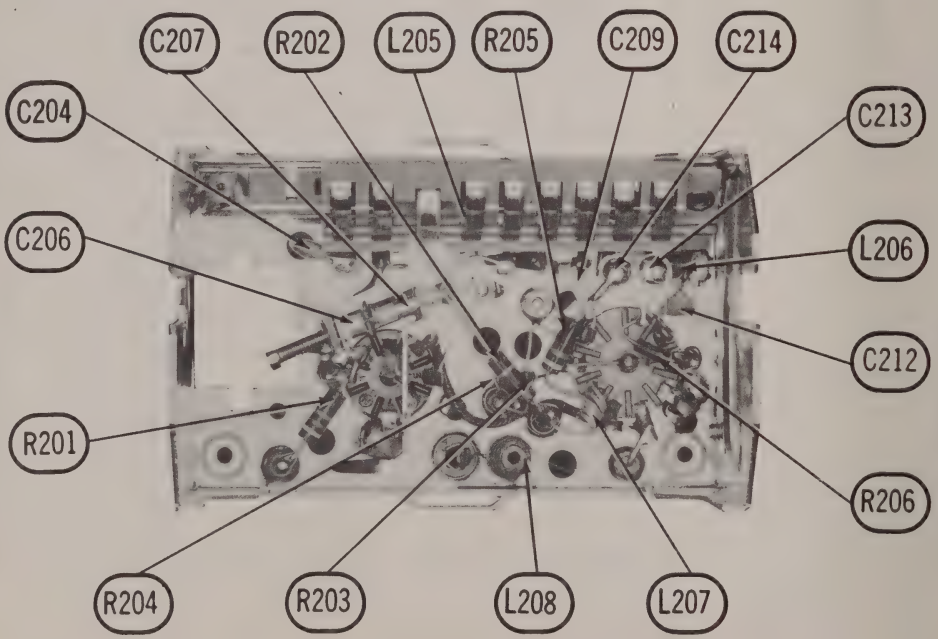
UHF TUNER 175-8




VHF TUNER 175-180 - BOTTOM VIEW

# VHF TUNER ALIGNMENT INSTRUCTIONS

## 175-167, -168, -169, -203, -204, -206

PRE-ALIGNMENT INSTRUCTIONS

Allow a 20 minute warm-up period for the receiver and test equipment.

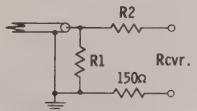
VHF OSCILLATOR ALIGNMENT

Set the Fine Tuning to the center of its range by turning the Fine Tuning shaft until the small index hole in the drive cam is directly over the small hole just below the channel 13 oscillator adjustment screw. Starting with the highest channel operating in the area, adjust the appropriate oscillator adjustment screw for best picture and sound for each channel available.

VHF RF AND MIXER ALIGNMENT

Connect the negative lead of a 2 volt bias supply to point ⓣ. Positive to chassis.
Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.
The sweep generator output lead should be terminated with its characteristic impedance, usually 50 ohms.
Use only enough sweep generator output to provide a usuable pattern on scope.
Use 10MC sweep unless otherwise noted.
Coils not containing adjustable cores are adjusted by expanding or compressing coil turns.

| | DUMMY ANTENNA | SWEEP GENERATOR COUPLING | SWEEP GENERATOR FREQUENCY | MARKER GENERATOR FREQUENCY | CHANNEL | CONNECT SCOPE | ADJUST | REMARKS |
|---|---|---|---|---|---|---|---|---|
| 1. | Fig. 201 | Across antenna terminals thru matching network (Fig. 201). | 213MC | 211.25MC<br>215.75MC | 13 | Vert. amp. thru 10K to point ⓥ. Low side to chassis. | A201 | Adjust for maximum gain and symmetry of response similar to Fig. 202 with markers as shown. |
| 2. | " | " | 207MC | 205.25MC<br>209.75MC | 12 | " | A202 | " |
| 3. | " | " | 201MC | 199.25MC<br>203.75MC | 11 | " | A203 | " |
| 4. | " | " | 195MC | 193.25MC<br>197.75MC | 10 | " | A204 | " |
| 5. | " | " | 189MC | 187.25MC<br>191.75MC | 9 | " | A205 | " |
| 6. | " | " | 183MC | 181.25MC<br>185.75MC | 8 | " | A206 | " |
| 7. | " | " | 177MC | 175.25MC<br>179.75MC | 7 | " | A207 | " |
| 8. | " | " | 85MC | 83.25MC<br>87.75MC | 6 | " | A208,<br>A209 | Adjust for maximum gain and symmetry of response similar to Fig. 202 with markers as shown. Adjust first coil for proper marker position and second coil for maximum gain and symmetry. |
| 9. | " | " | 79MC | 77.25MC<br>81.75MC | 5 | " | A210,<br>A211 | " |
| 10. | " | " | 69MC | 67.25MC<br>71.75MC | 4 | " | A212,<br>A213 | " |
| 11. | " | " | 63MC | 61.25MC<br>65.75MC | 3 | " | A214,<br>A215 | " |
| 12. | " | " | 57MC | 55.25MC<br>59.75MC | 2 | " | A216,<br>A217 | " |




Zo = Impedance of Cable

| Zo | R1 | R2 |
|---|---|---|
| 50Ω | 56Ω | 120Ω |
| 75Ω | 82Ω | 110Ω |

FIG. 201

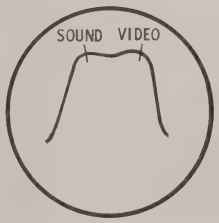
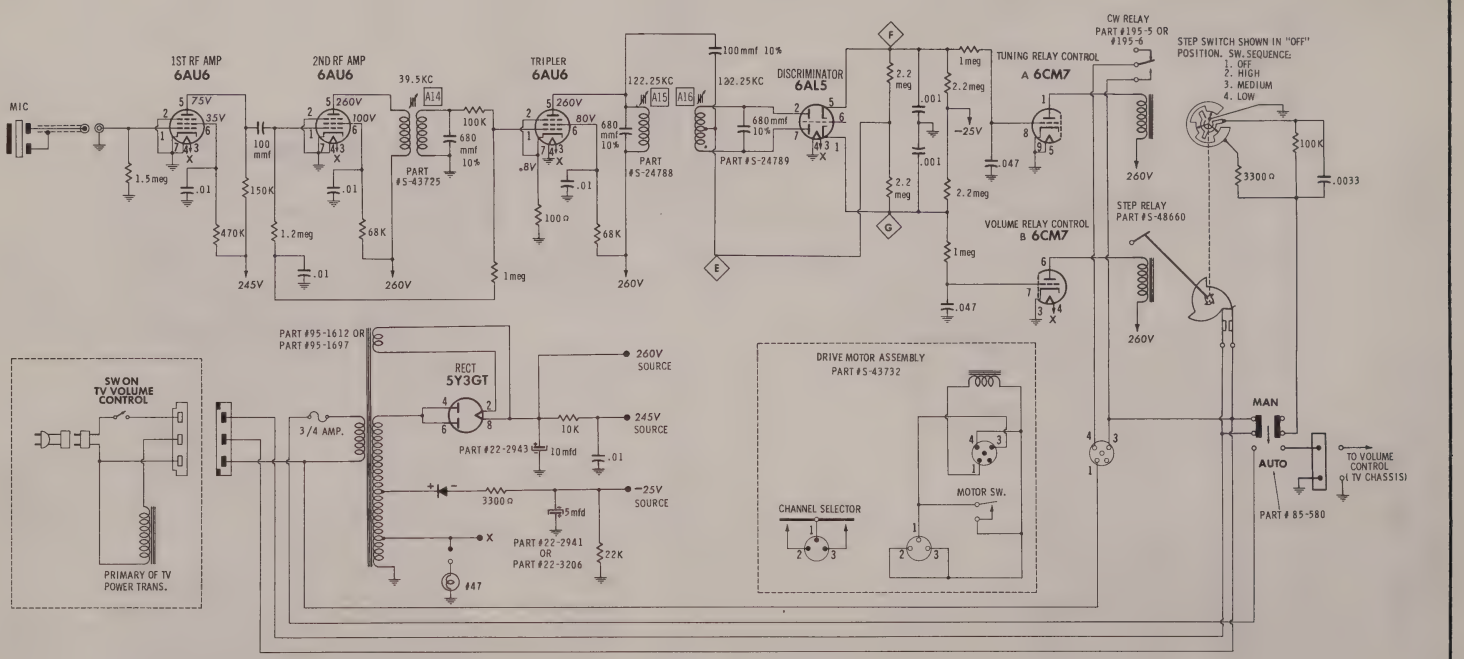



FIG. 202




## ALIGNMENT INSTRUCTIONS

| | SIGNAL GENERATOR COUPLING | SIGNAL GENERATOR FREQUENCY | CONNECT VTVM | ADJUST | REMARKS |
|---|---|---|---|---|---|
| 1. | High side thru 100K to pin 1 (grid) of 1st Amp. Low side to chassis. | 39.5KC (Unmod.) | DC probe thru 1 meg to point Ⓕ. Common to chassis. | A14 | Adjust for maximum output. |
| 2. | " | 122.25KC | " | A15 | " |
| 3. | " | " | DC probe to point Ⓕ. Common to point Ⓖ. | A16 | Adjust for zero reading. A positive and negative reading will be obtained on either side of the correct setting. |

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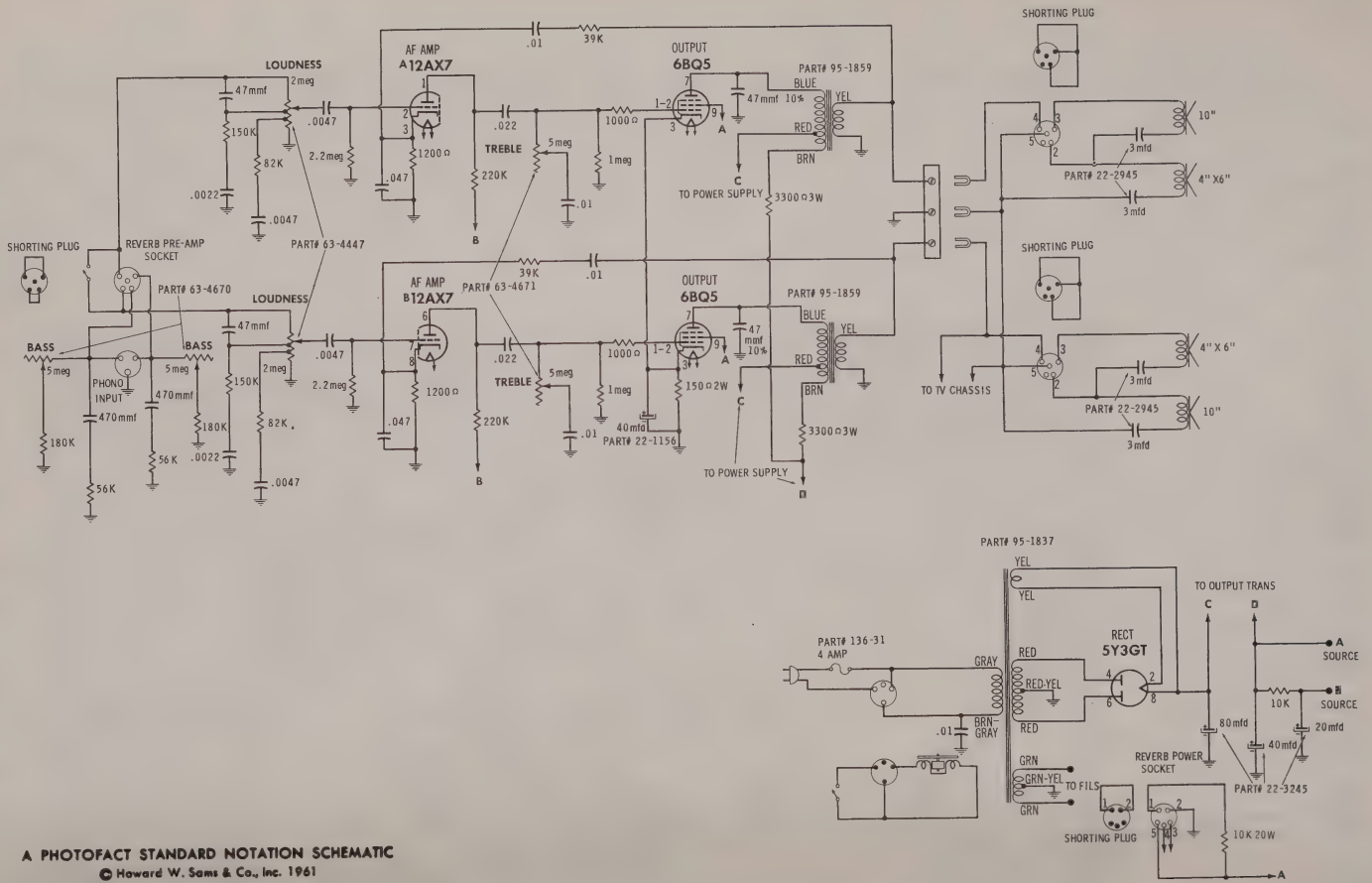
# REMOTE CONTROL RECEIVER - S-50153, S-51773

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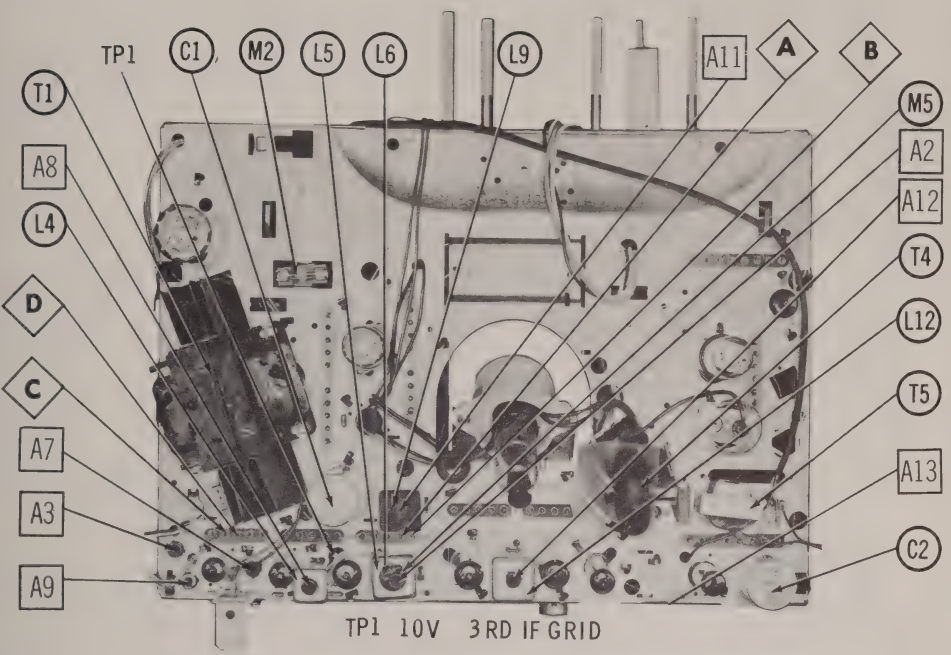
## AMP CHASSIS 4G21




CHASSIS—TOP VIEW

## SERVICING IN THE FIELD

SAFETY GLASS

The safety glass is an integral part of the picture tube.

FUSE LOCATION

TV: 5 Amp. S/B – AC Line – (See Tube Placement Chart)
7/10 Amp. S/B-LV Supply-(See Tube Placement Chart)
#24 Fuse Wire-Filament – (See M3 in photo "Chassis-Bottom View")
Remote Control Receiver: 3/4 Amp. — AC Line
Amp. 4G21: 4 Amp. — AC Line

TUNER #175-180 OSCILLATOR ADJUSTMENT

To touch up the VHF Oscillator, remove Channel Indicator and Fine Tuning knob.

AGC

The AGC may be varied by means of an AGC control. (See "Tube Placement Chart" for location.)

FOCUS

The focus may be varied by means of a Focus control. (See "Tube Placement Chart" for location.)

SYNC STABILITY

Sync stability may be varied by means of a Fringe Lock control. (For location, see "Tube Placement Chart".)

HORIZONTAL OSCILLATOR

The horizontal oscillator coil slug is used for the Horizontal Hold.

WIDTH

The width may be varied by adjusting a metallic sleeve, located between the yoke and the picture tube neck, in or out of the yoke.

BUZZ ADJUSTMENT

To eliminate intercarrier buzz, adjust the Buzz control for MINIMUM buzz and maximum sound. (For location, see "Tube Placement Chart".)

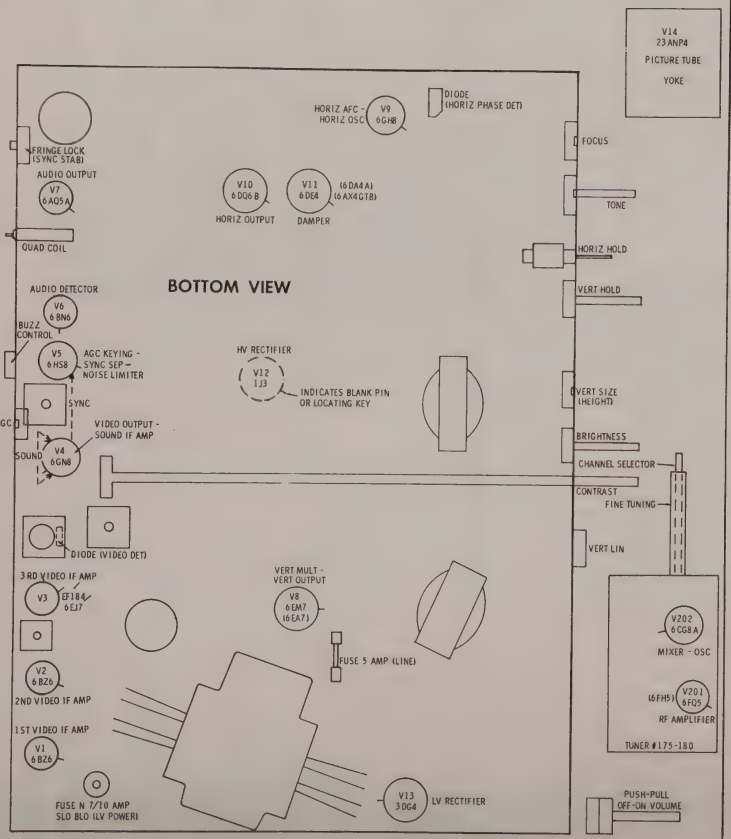
CENTERING

Centering is accomplished by 2 magnetic rings, located behind the yoke, on the neck of the picture tube.

PINCUSHION CORRECTION

Reduce the picture size so that the sides of the raster are visible. Position the magnets so that all sides are straight.

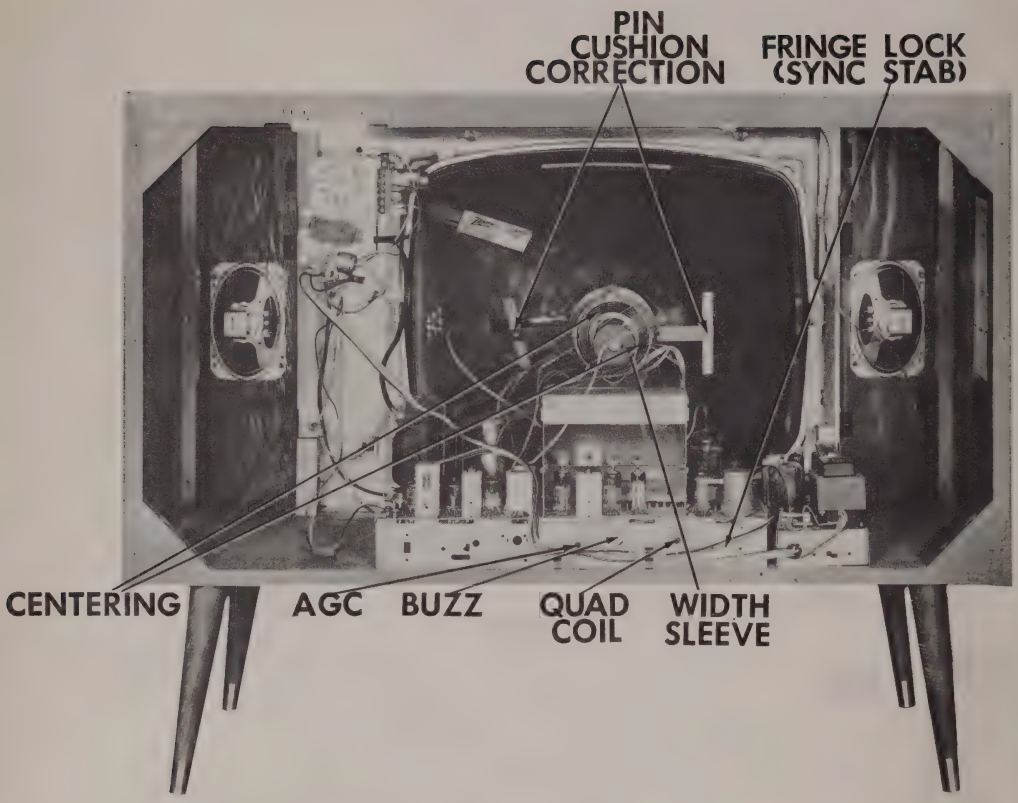
## TUBE PLACEMENT CHART




## RESISTANCE MEASUREMENTS

| ITEM | TUBE | Pin 1 | Pin 2 | Pin 3 | Pin 4 | Pin 5 | Pin 6 | Pin 7 | Pin 8 | Pin 9 |
|---|---|---|---|---|---|---|---|---|---|---|
| V1 | 6BZ6 | 1.4meg | 1550Ω | FIL | FIL | ▪220Ω | ▪220Ω | 1500Ω | | |
| V2 | 6BZ6 | 35K | INF | FIL | FIL | †265Ω | †265Ω | ▪22Ω | | |
| V3 | EF184/6EJ7 | 1000Ω | 10K | NC | FIL | FIL | 0Ω | †3300Ω | †3300Ω | 0Ω |
| V4 | 6GN8 | 0Ω | 100K | †470K | FIL | FIL | 15Ω | 2100Ω | †15K | †6500Ω |
| V5 | 6HS8 | •5500Ω | †22K | 685K | FIL | FIL | 200K | •400K | †75K | †10meg |
| V6 | 6BN6 | ▪280Ω | .1Ω | FIL | FIL | †27K | 3.7Ω | †390K | | |
| V7 | 6AQ5A | •100K | 680Ω | FIL | FIL | †1800Ω | †1000Ω | NC | | |
| V8 | 6EM7 | 2.2meg | †395Ω | •1000Ω | •650K | •†6meg | 0Ω | FIL | FIL | |
| V9 | 6GH8 | †100K | 100K | †47K | FIL | FIL | †180K | 28Ω | 0Ω | 1.5meg |
| V10 | 6DQ6B | TP | FIL | TP | †8300Ω | 1meg | NC | FIL | 0Ω | TOP CAP †8Ω |
| V11 | 6DE4 | NC | NC | 3meg | NC | †45Ω | NC | FIL | FIL | |
| V12 | 1J3 | PINS 1 THRU 8 HAVE INFINITE RESISTANCE | | | | | | | | TOP CAP †300Ω |
| V13 | 3DG4 | ¶30K | NC | ¶30K | TP | 27Ω | NC | 30Ω | TP | |
| V14 | 23ANP4 | FIL | 15K | Pin 6 •2.5meg | Pin 10 30K | Pin 11 •150K | Pin 12 FIL | | | |
| V201 | 6FQ5 | 0Ω | 2.9meg | FIL | FIL | †5900Ω | 0Ω | 0Ω | | |
| V202 | 6CG8A | 4700Ω | †9400Ω | 0Ω | FIL | FIL | †4700Ω | †4700Ω | 0Ω | 220K |
| ITEM | TUBE | Pin 1 | Pin 2 | Pin 3 | Pin 4 | Pin 5 | Pin 6 | Pin 7 | Pin 8 | Pin 9 |

¶ THIS READING WILL VARY DEPENDING UPON THE CONDITION OF THE ELECTROLYTIC IN THE CIRCUIT.
• THIS READING WILL VARY. CONTROL SET FOR NORMAL OPERATION.
† MEASURED FROM PIN 3 OF V13.
† MEASURED FROM PIN 3 OF V11.
▪ MEASURED FROM PIN 2 OF V2.
NC NO CONNECTION
TP TIE POINT




CABINET—REAR VIEW

## HORIZONTAL SWEEP CIRCUIT ADJUSTMENTS

The Horizontal Hold is equipped with a stop which limits rotation to approximately 270° with the knob on the shaft. To adjust, remove the knob and adjust by turning the shaft until the picture is synchronized to the point where it is virtually impossible to disrupt horizontal synchronization when switching from channel to channel. Install the knob with its pointer centered between the stops.

## DISASSEMBLY INSTRUCTIONS

TV CHASSIS AND PICTURE TUBE ASSEMBLY REMOVAL

1. Remove push-on type knobs from Volume Control and Horizontal Hold Control.
2. Remove 4 chassis bolts.
3. Remove 4 screws holding picture tube brackets.
4. Remove 2 screws at rear of tuner bracket and pull tuner out.
5. Remove Channel Selector Switch, Volume Control, and Speaker leads.
6. Pull chassis straight out.

PHOTOFACT® Folder with CIRCUITRACE®

# ADMIRAL MODELS Y3051, Y3053, Y3058 (Ch. 5T5)

ADMIRAL MODELS Y3051, Y3053, Y3058 (Ch. 5T5)

| | |
|---|---|
| TRADE NAME | Admiral Models Y3051, Y3053, Y3058 (Ch. 5T5) |
| MANUFACTURER | Admiral Sales Corp., National Service Div., 903 Morrissey Drive, P. O. Box 845, Bloomington, Ill. |
| TYPE SET | AC Operated 5 Tube AM Receiver With Electric Clock |
| POWER SUPPLY | 110 – 120 Volts AC, 60 Cycles |
| TUNING RANGE—BROADCAST | 535 – 1620KC RATING 23 Watts, .22 Amp. @117 Volts AC |

## ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading.

Suggested Alignment Tools: A1 thru A4..... GENERAL CEMENT #5097, 8727
WALSCO #2515
A5, A6..... GENERAL CEMENT #5004, 5008, 5009
WALSCO #2520

| | SIGNAL GENERATOR COUPLING | SIGNAL GENERATOR FREQUENCY | RADIO DIAL SETTING | OUTPUT METER | ADJUST | REMARKS |
|---|---|---|---|---|---|---|
| 1. | High side thru .1mfd to antenna stator lug (rear section) of tuning gang. Low side to chassis. | 455KC (400~ Mod.) | Tuning gang fully open. | Across voice coil. | A1, A2, A3, A4 | Adjust for maximum output. |
| 2. | " | 1620KC | " | " | A5 | " |
| 3. | Fashion loop of several turns of wire and radiate signal into loop of receiver. | 1400KC | 1400KC Signal. | " | A6 | " |

DISASSEMBLY

1. Remove 2 screws from cabinet bottom.
2. Remove rear center screw (located above AC socket).
3. Loosen 2 remaining screws on back cover.
4. Press on screws to disconnect AC interlock.
5. Remove screws loosened in step 3.
6. Remove front panel with chassis attached.

ADMIRAL MODELS Y3051, Y3053, Y3058 (Ch. 5T5)

SET 557 FOLDER 3

**HOWARD W. SAMS & CO., INC.** Indianapolis 6, Indiana

The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed. Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. © 1961 Howard W. Sams & Co., Inc., Indianapolis 6, Indiana. Printed in U.S. of America

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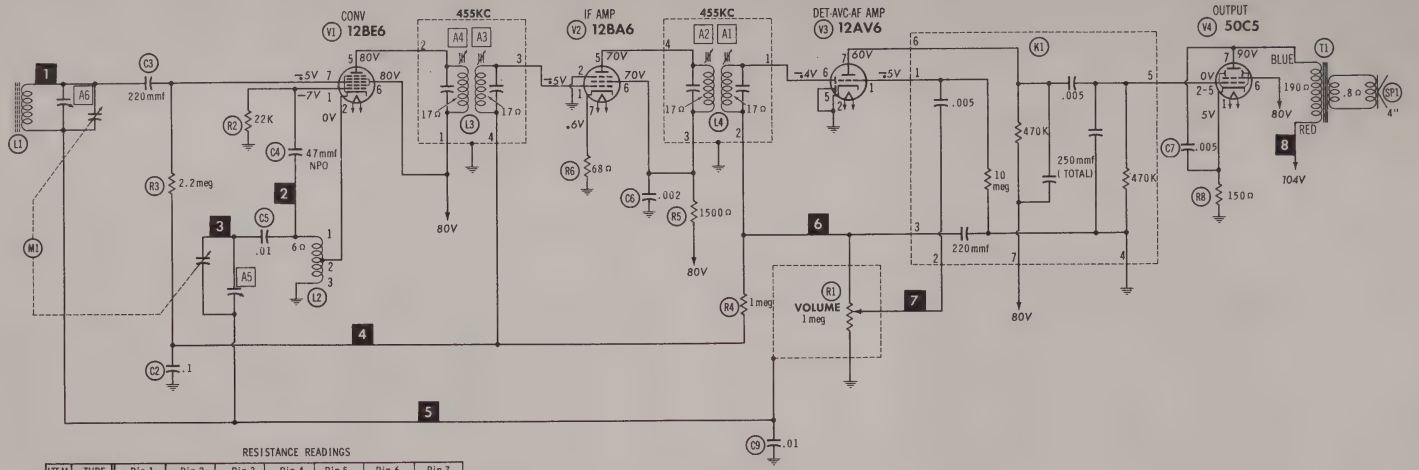
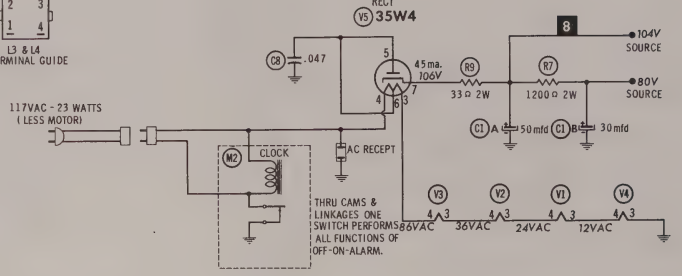



RESISTANCE READINGS

| ITEM | TUBE | Pin 1 | Pin 2 | Pin 3 | Pin 4 | Pin 5 | Pin 6 | Pin 7 |
|---|---|---|---|---|---|---|---|---|
| V1 | 12BE6 | 22K | .2Ω | 45Ω | 30Ω | †1200Ω | †1200Ω | 4.2meg |
| V2 | 12BA6 | 2meg | 0Ω | 30Ω | 15Ω | †2700Ω | †2700Ω | 68Ω |
| V3 | 12AV6 | 10meg | 0Ω | 0Ω | 15Ω | 0Ω | 1meg | †270K |
| V4 | 50C5 | 150Ω | 470K | 45Ω | 110Ω | NC | †1200Ω | †220Ω |
| V5 | 35W4 | NC | NC | 110Ω | 150Ω | 145Ω | 145Ω | ¶ INF |

¶ THIS READING WILL VARY DEPENDING UPON THE CONDITION OF THE ELECTROLYTIC IN THE CIRCUIT.
† MEASURED FROM PIN 7 OF V5. NC NO CONNECTION




NUMBERS ASSIGNED TO COILS, SWITCHES, PLUGS, SOCKETS, AND TRANSFORMERS ARE TO FACILITATE CIRCUIT TRACING OR COMPONENT REPLACEMENT AND MAY NOT NECESSARILY BE FOUND ON THE UNIT.

1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured with 1000 ohm per volt voltmeter.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common ground.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ±15% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

A PHOTOFACT STANDARD NOTATION SCHEMATIC with CIRCUITRACE®

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**ADMIRAL MODELS Y3051, Y3053, Y3058 (Ch. 5T5)**

# PARTS LIST AND DESCRIPTIONS

## TUBES

| ITEM No. | USE | TYPE (GENERAL ELECTRIC • RAYTHEON • SYLVANIA) |
|---|---|---|
| V1 | Converter | 12BE6 |
| V2 | IF Amplifier | 12BA6 |
| V3 | Det.-AVC-AF Amp. | 12AV6 |
| V4 | Output | 50C5 |
| V5 | Rectifier | 35W4 |

## ELECTROLYTIC CAPACITORS

| ITEM No. | RATING CAP. | RATING VOLT. | REPLACEMENT DATA ADMIRAL PART No. | AEROVOX PART No. | CORNELL-DUBILIER PART No. | GENERAL ELECTRIC PART No. | MALLORY PART No. | PYRAMID PART No. | SPRAGUE PART No. |
|---|---|---|---|---|---|---|---|---|---|
| C1A | B 50 | 150 | 67B39-1 | PR2-030 | BBRD5315 | QT2-7 | PWD211 | TDLD-8 | TVA-2450 |
| B | C 30 | 150 | | | | | | | |

## FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

| ITEM No. | RATING | REMARKS | REPLACEMENT DATA AEROVOX PART No. | CENTRALAB PART No. | CORNELL-DUBILIER PART No. | ELMENCO PART No. | MALLORY PART No. | SPRAGUE PART No. |
|---|---|---|---|---|---|---|---|---|
| C2 | .1 400V | | P488N-1 | DF-104 | CUB4P1 | 4DP-3-104 | GEM-401 | 4TM-P10 |
| C3 | 220 | | DI-220 | DD-221 | L10T22 | CCD-221 | GP322 | 10TS-T22 |
| C4 | 47 NPO | | NPO-DI 47 | DTZ-47 | C10Q47C | CCTO-470 | CNO-447 | 10TCC-Q47 |
| C5 | .01 | | BPD-01 | DD-103 | BYA10S1 | CCD-103 | B-110 | 5HK-S10 |
| C6 | .002 | | BPD-002 | DD-202 | BYA10D2 | CCD-202 | B-220 | 5HK-D20 |
| C7 | .005 | | BPD-005 | DD-502 | BYA10D5 | CCD-502 | B-250 | 5HK-D50 |
| C8 | .047 400V | | P488N-047 | DD-503 | CUB4S47 | 4DP-3-473 | GEM-4147 | 4TM-S47 |
| C9 | .01 | | BPD-01 | DD-103 | BYA10S1 | CCD-103 | B-110 | 5HK-S10 |

## CONTROLS

| ITEM No. | RATING RESISTANCE | RATING WATTS | REPLACEMENT DATA ADMIRAL PART No. | CENTRALAB PART No. | CLAROSTAT PART No. | CTS-IRC PART No. | MALLORY PART No. | INSTALLATION NOTES |
|---|---|---|---|---|---|---|---|---|
| R1 | 1meg | ½ | 75C56-5 | | | | | Volume |

## RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

| ITEM No. | RATING | REPLACEMENT DATA IRC PART No. | WORKMAN TV PART No. | REMARKS |
|---|---|---|---|---|
| R2 | 22K | | | |
| R3 | 2.2meg | | | |
| R4 | 1meg | | | |
| R5 | 1500Ω | | | |
| R6 | 68Ω | | | |
| R7 | 1200Ω 2W | | | |
| R8 | 150Ω | | | |
| R9 | 33Ω 2W | | | |

## COMPONENT COMBINATIONS

| ITEM No. | USE | DESCRIPTION | ADMIRAL PART No. | REPLACEMENT DATA | |
|---|---|---|---|---|---|
| K1 | Audio Coupling | 220mmf, 250mmf, .005mfd, .005mfd, 470K, 470K, 10meg | 63C6-20 | Aerovox<br>Centralab<br>Sprague | PA-306<br>PC-159<br>DT-6 |

# PRINTED BOARD

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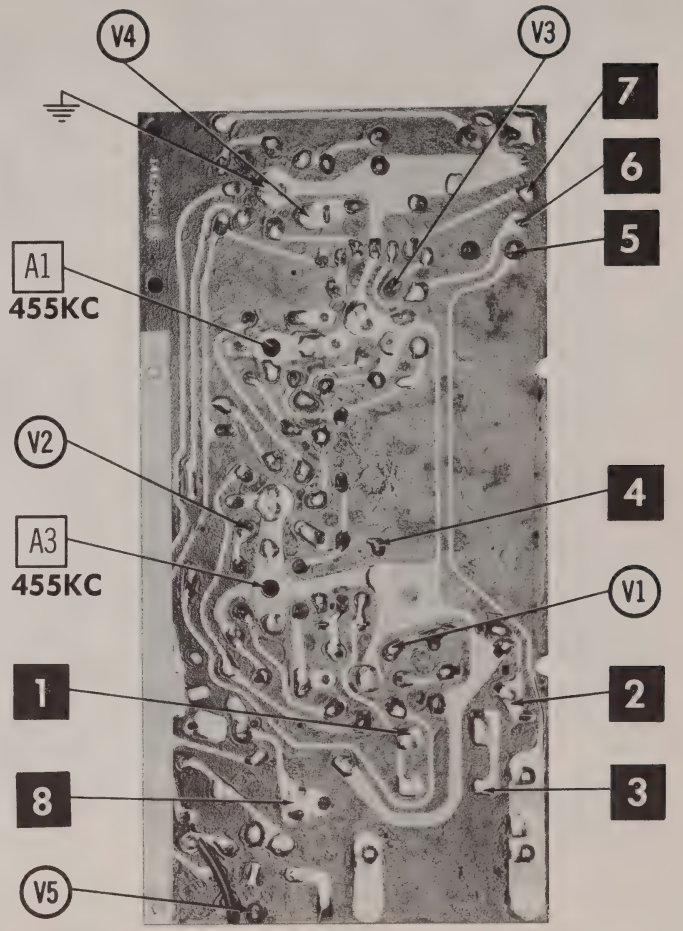
ARROWS INDICATING TUBE LOCATIONS ARE POINTING TO PIN 1 UNLESS OTHERWISE INDICATED



# PARTS LIST AND DESCRIPTIONS (Continued)

## COILS (RF-IF)

| ITEM No. | USE | REPLACEMENT DATA | | | | | NOTES |
|---|---|---|---|---|---|---|---|
| | | ADMIRAL PART No. | Merit PART No. | Miller PART No. | Stancor PART No. | Workman TV PART No. | |
| L1 | Loopstick | 69B228-3 | BC-419 | 705-A | | T532 | |
| L2 | Osc. | | | | | | |
| L3 | Input IF | 72C170-5 | BC-356 | 13-PC1 | RTC-8641 | T614 | |
| L4 | Output IF | 72C170-4 | BC-357 | 13-PC2 | RTC-8642 | T615 | |

## TRANSFORMER (AUDIO OUTPUT)

| ITEM No. | IMPEDANCE | | REPLACEMENT DATA | | | | | NOTES |
|---|---|---|---|---|---|---|---|---|
| | PRI. | SEC. | ADMIRAL PART No. | Merit PART No. | Stancor PART No. | Thordarson PART No. | Triad PART No. | |
| T1 | 3000Ω | 3-4Ω | (Part of SP1) | A-3025 | A-3332 | 24S53 | S-16X | |

## SPEAKER

| ITEM No. | TYPE | | | REPLACEMENT DATA | | NOTES |
|---|---|---|---|---|---|---|
| | SIZE | FIELD | V. C. IMP. | ADMIRAL PART No. | QUAM PART No. | |
| SP1 | 4" | PM | 3-4Ω | 78B142-5 * | 4A07 | * Includes T1 |

## MISCELLANEOUS

| ITEM No. | PART NAME | ADMIRAL PART No. | NOTES |
|---|---|---|---|
| M1 | Tuning Cap. | 68C76-5 | 2 Gang |
| M2 | Clock Assy. | 91C47-1 | |

## CABINETS & CABINET PARTS

**(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)**

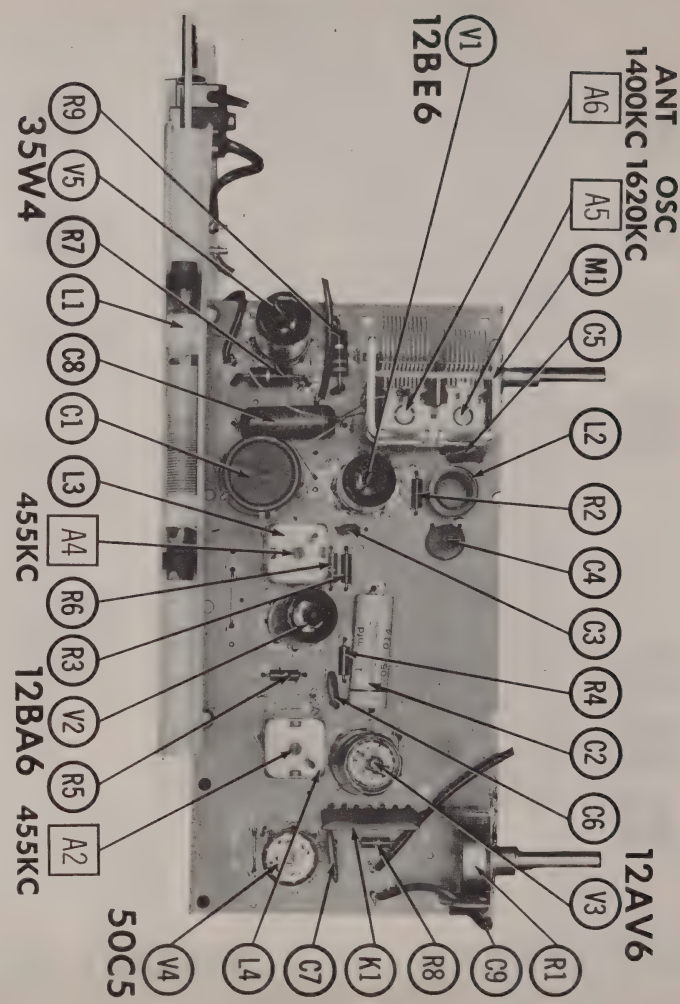
| NAME | PART NO. | DESCRIPTION |
|---|---|---|
| Crystal | 24C38-1 | |
| Indicator | 21C138-1 | Tuning |
| Indicator | 21C138-2 | Volume |
| Knob | 33B412-1 | Tuning, Volume |
| Pushbutton | 33C414-1 | Clock, Black, Model Y3051 |
| Pushbutton | 33C414-2 | Clock, White, Model Y3053 |
| Pushbutton | 33C414-3 | Clock, Green, Model Y3058 |
| Cabinet Back | 34D125-35 | Black, Model Y3051 |
| Cabinet Front | 34D165-1 | Black, Model Y3051 |
| Cabinet Back | 34D125-36 | White, Model Y3053 |
| Cabinet Front | 34D165-2 | White, Model Y3053 |
| Cabinet Back | 34D125-37 | Green, Model Y3058 |
| Cabinet Front | 34D165-3 | Green, Model Y3058 |

## WIRING DATA

General-use Unshielded Hook-up Wire ..... Use BELDEN No. 8530 (Solid) Available in Ten Colors
8524 (Stranded) Available in Ten Colors

Power Cord (Interlock Type) ..... Use BELDEN No. 8874

# CHASSIS—TOP VIEW



PHOTOFACT® Folder

# ALTEC LANSING
# MODEL 353A

ALTEC LANSING
MODEL 353A

ALTEC LANSING
MODEL 353A

| | |
|---|---|
| TRADE NAME | Altec Lansing Model 353A |
| MANUFACTURER | Altec Lansing Corp, A Subsidiary of Ling-Temco Electronics, Inc., 1515 S. Manchester Ave., Anaheim, Calif. |
| TYPE SET | AC Operated 9 Tube Stereo Amplifier |
| POWER SUPPLY | 110 — 120 Volts AC, 60 Cycles RATING 165 Watts, 1.65 Amp. @ 117 Volts AC |



**HOWARD W. SAMS & CO., INC.** Indianapolis 6, Indiana

The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of KV769

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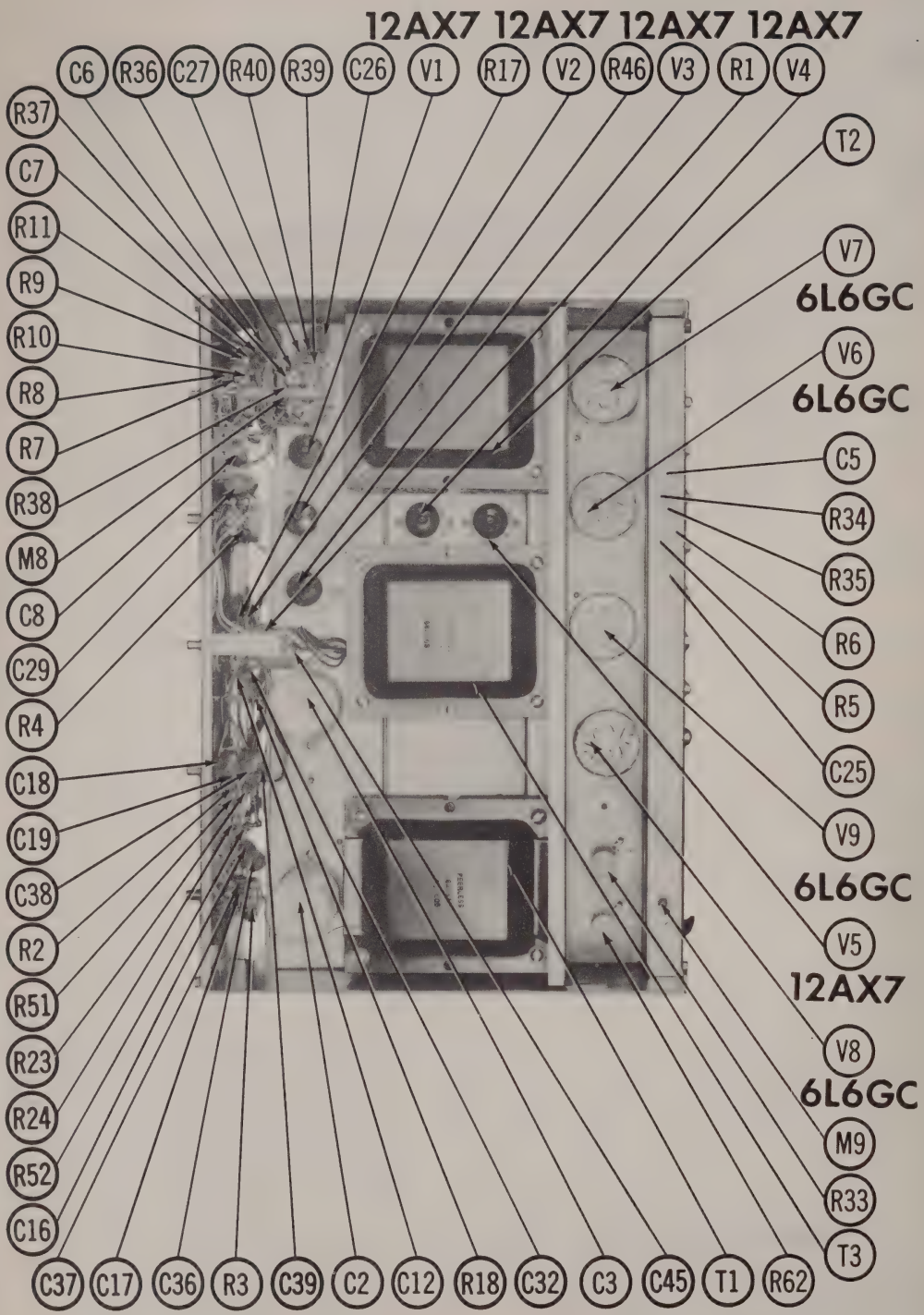
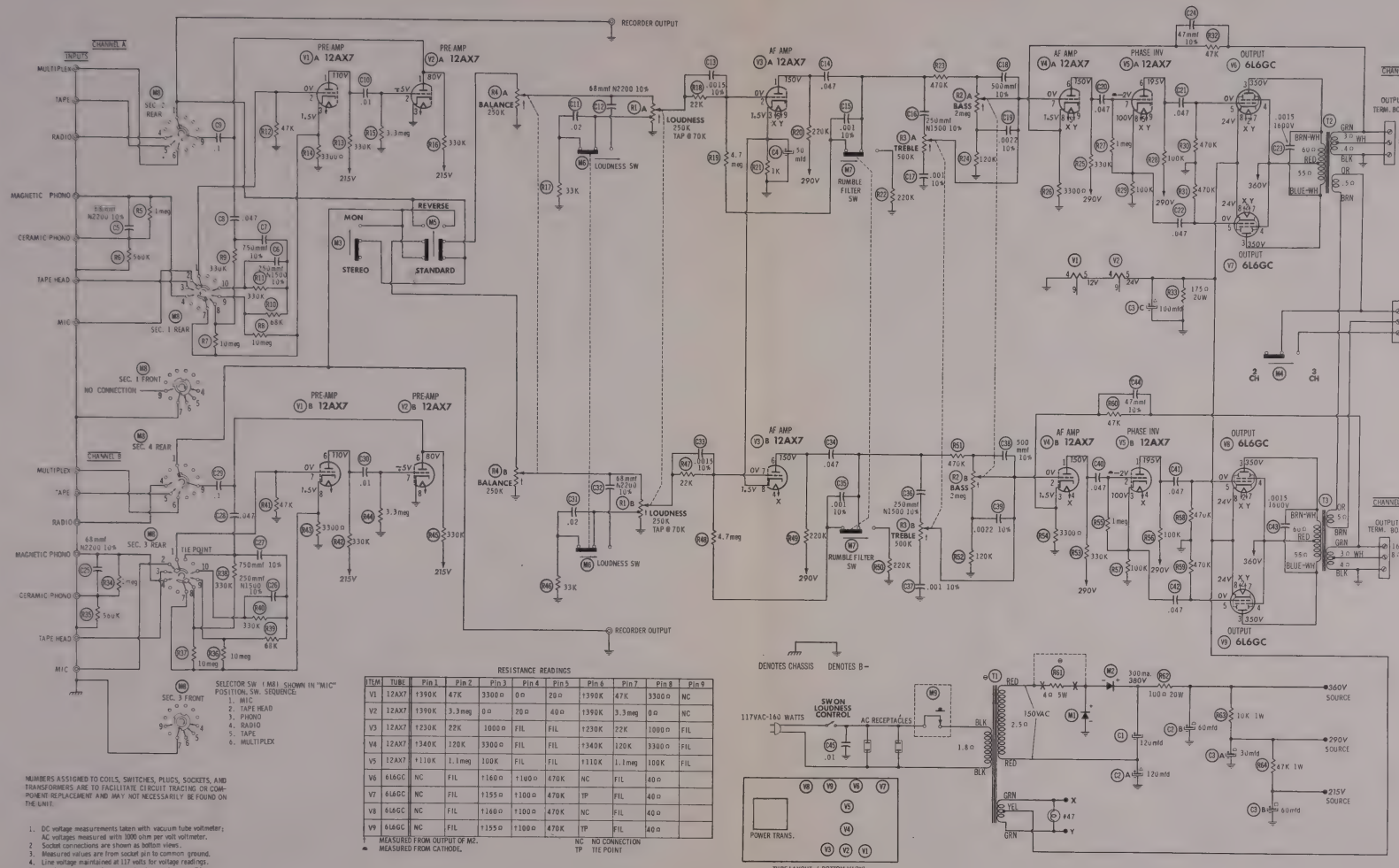



CHASSIS-TOP VIEW




RESISTANCE READINGS

| ITEM | TUBE | Pin 1 | Pin 2 | Pin 3 | Pin 4 | Pin 5 | Pin 6 | Pin 7 | Pin 8 | Pin 9 |
|---|---|---|---|---|---|---|---|---|---|---|
| V1 | 12AX7 | †390K | 47K | 3300Ω | 0Ω | 29Ω | †390K | 47K | 3300Ω | NC |
| V2 | 12AX7 | †390K | 3.3meg | 0Ω | 29Ω | 40Ω | †390K | 3.3meg | 0Ω | NC |
| V3 | 12AX7 | †230K | 22K | 1000Ω | FIL | FIL | †230K | 22K | 1000Ω | FIL |
| V4 | 12AX7 | †340K | 120K | 3300Ω | FIL | FIL | †340K | 120K | 3300Ω | FIL |
| V5 | 12AX7 | †110K | 1.1meg | 100K | FIL | FIL | †110K | 1.1meg | 100K | FIL |
| V6 | 6L6GC | NC | FIL | †160Ω | †100Ω | 470K | NC | FIL | 40Ω | |
| V7 | 6L6GC | NC | FIL | †155Ω | †100Ω | 470K | TP | FIL | 40Ω | |
| V8 | 6L6GC | NC | FIL | †160Ω | †100Ω | 470K | NC | FIL | 40Ω | |
| V9 | 6L6GC | NC | FIL | †155Ω | †100Ω | 470K | TP | FIL | 40Ω | |

† MEASURED FROM OUTPUT OF M2.
● MEASURED FROM CATHODE.
NC NO CONNECTION
TP TIE POINT

NUMBERS ASSIGNED TO COILS, SWITCHES, PLUGS, SOCKETS, AND TRANSFORMERS ARE TO FACILITATE CIRCUIT TRACING OR COMPONENT REPLACEMENT AND MAY NOT NECESSARILY BE FOUND ON THE UNIT.

1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured with 1000 ohm per volt voltmeter.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common ground.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance of component values makes possible a variation of ±15% in voltage and resistance readings.
6. All controls at minimum, proper output load connected.

A PHOTOFACT STANDARD NOTATION SCHEMATIC

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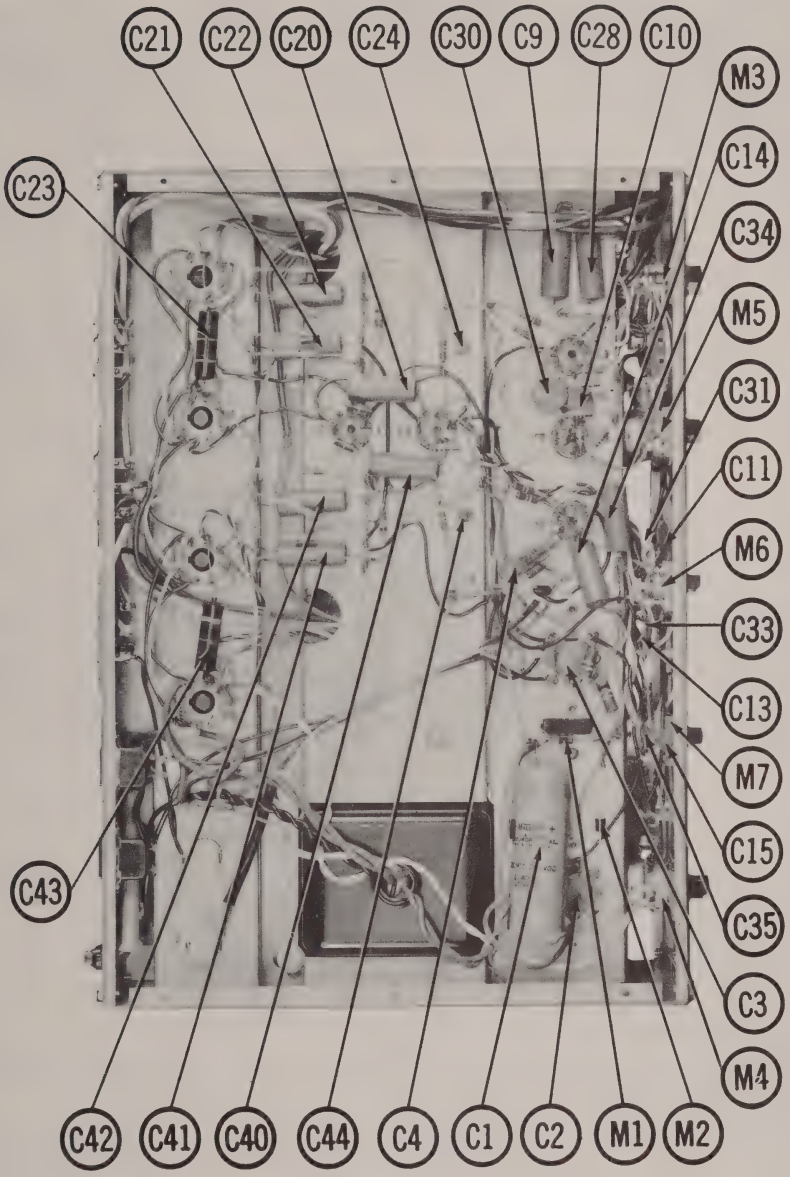
● SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM

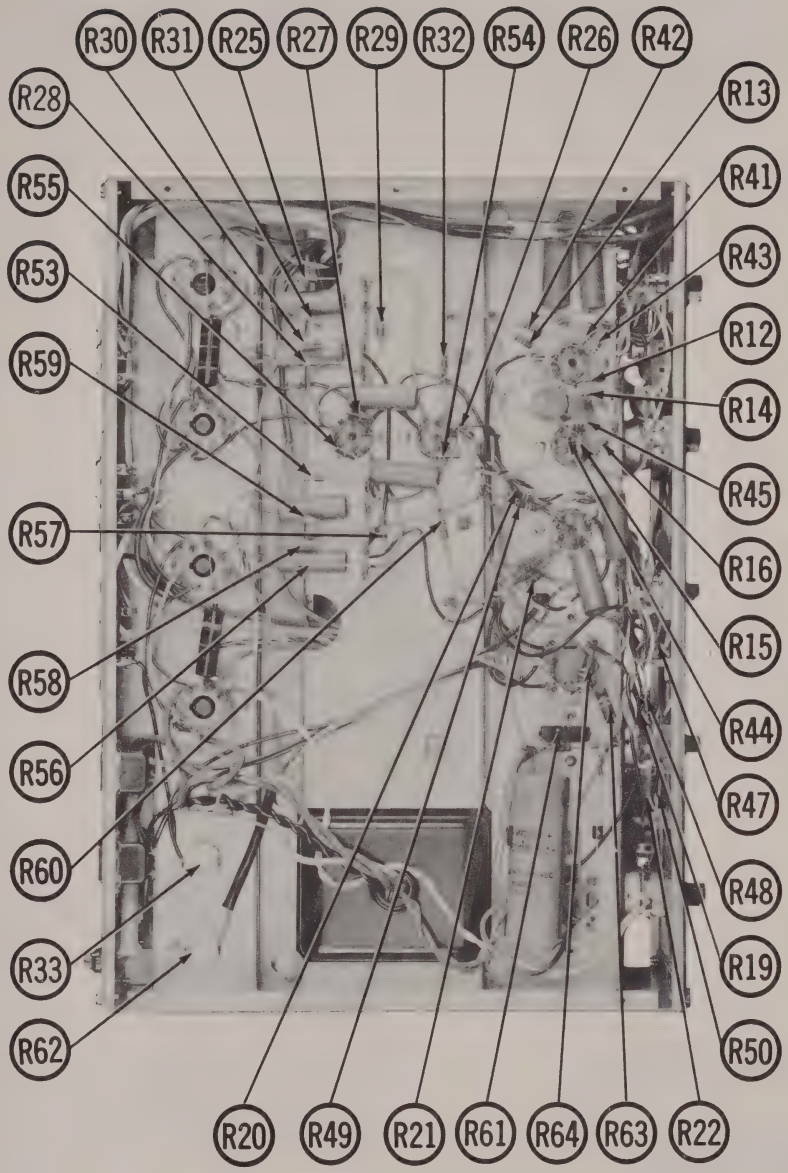
ARROWS ON CONTROLS INDICATE CLOCKWISE ROTATION (CONTROL VIEWED FROM SHAFT END)

**ALTEC LANSING MODEL 353A**




CHASSIS BOTTOM VIEW-CAPACITOR & MISC. IDENT.

SET 557 FOLDER 4




CHASSIS BOTTOM VIEW-RESISTOR IDENT.

# PARTS LIST AND DESCRIPTIONS

## TUBES

| ITEM No. | USE | TYPE | ITEM No. | USE | TYPE |
|---|---|---|---|---|---|
| V1 | Channel A Preamp. - Channel B Preamp. | 12AX7 | V5 | Channel A Phase Inv. Channel B Phase Inv. | 12AX7 |
| V2 | Channel A Preamp. - Channel B Preamp. | 12AX7 | V6 | Channel A Output | 6L6GC |
| V3 | Channel A AF Amp. - Channel B AF Amp. | 12AX7 | V7 | Channel A Output | 6L6GC |
| V4 | Channel A AF Amp. - Channel B AF Amp. | 12AX7 | V8 | Channel B Output | 6L6GC |
| | | | V9 | Channel B Output | 6L6GC |

## ELECTROLYTIC CAPACITORS

| ITEM No. | RATING CAP. | RATING VOLT. | REPLACEMENT DATA Altec Lansing PART No. | AEROVOX PART No. | CORNELL-DUBILIER PART No. | GENERAL ELECTRIC PART No. | MALLORY PART No. | PYRAMID PART No. | SPRAGUE PART No. |
|---|---|---|---|---|---|---|---|---|---|
| C1 | 120 | 200 | | PR1-100 | | QT1-26 | WS427 | TD-150-200 | TVA-1575 |
| C2A | 120 | 200 | | AFHS3-190-80 | | | FP121 | TMS-1480 | TVLS-2655.5* |
| B | 60 | 400 | | | | | TC795 | TD-60-450 | |
| C3A | 30 | 300 | | AFH3-114-80 | B0326 | XC3-33 | FP239 | TMD-2400 | TVLS-3573.8* |
| B | 60 | 250 | | | BR1005 | | TC3501 | TD-100-50 | |
| C | 100 | 50 | | | | | | | |
| C4 | 50 | 3 | | PTT12 | NLW50-3 | MT1-15 | TT6X50 | MLV50-3 | TE-1058 |

* Not normally in distributor's stock. Available thru distributor on order to manufacturer.

## FIXED CAPACITORS

| ITEM No. | RATING | REMARKS | REPLACEMENT DATA AEROVOX PART No. | CENTRALAB PART No. | CORNELL-DUBILIER PART No. | ELMENCO PART No. | MALLORY PART No. | SPRAGUE PART No. |
|---|---|---|---|---|---|---|---|---|
| C5 | 68 N2200 10% | | | | | * | | |
| C6 | 250 N1500 10% | | | | | * | | |
| C7 | 750 10% | | DI-750 | DD-751 | 5R5T75 | CCD-751 | GP375 | 10TS-T75 |
| C8 | .047 400V | | P488N-047 | DD-503 | CUB4S47 | 4DP-3-473 | GEM-4147 | 4TM-S47 |
| C9 | .1 400V | | P488N-1 | DF-104 | CUB4P1 | 4DP-3-104 | GEM-401 | 4TM-P10 |
| C10 | .01 | | BPD-01 | DD-103 | BYA10S1 | CCD-103 | B-110 | 5HK-S10 |
| C11 | .02 | | BPD-02 | DD-203 | BYB6S2 | CCD-203 | B-120 | 5HK-S20 |
| C12 | 68 N2200 10% | | | | | * | | |
| C13 | .0015 10% | | DI-1500 | DD-152 | PM6DI5 | CCD-152 | B-215 | 10TS-D15 |
| C14 | .047 400V | | P488N-047 | DD-503 | CUB4S47 | 4DP-3-473 | GEM-4147 | 4TM-S47 |
| C15 | .001 10% | | DI-1000 | DD-102 | PM6DI | CCD-102 | GP210 | 10TS-D10 |
| C16 | 250 N1500 10% | | | | | * | | |
| C17 | .001 10% | | DI-1000 | DD-102 | PM6DI | CCD-102 | GP210 | 10TS-D10 |
| C18 | 500 10% | | DI-500 | DD-501 | 5R5T5 | CCD-501 | GP350 | 10TS-T50 |
| C19 | .0022 10% | | DI-2200 | | PM6D22 | CCD-222 | JL-222 | 10TS-D22 |
| C20 | .047 400V | | P488N-047 | DD-503 | CUB4S47 | 4DP-3-473 | GEM-4147 | 4TM-S47 |
| C21 | .047 400V | | P488N-047 | DD-503 | CUB4S47 | 4DP-3-473 | GEM-4147 | 4TM-S47 |
| C22 | .047 400V | | P488N-047 | DD-503 | CUB4S47 | 4DP-3-473 | GEM-4147 | 4TM-S47 |
| C23 | .0015 1600V | | P1684CM-0015 | DD30-152 | CUB16DY5 | 16DP-2-152 | GEM-16215 | MB-DI5 |
| C24 | 47 10% | | DI-47 | DD-470 | L10D47 | CCD-470 | GP447 | 10TS-Q47 |
| C25 | 68 N2200 10% | | | | | * | | |
| C26 | 250 N1500 10% | | | | | * | | |
| C27 | 750 10% | | DI-750 | DD-751 | 5R5T75 | CCD-751 | GP350 | 10TS-T75 |
| C28 | .047 400V | | P488N-047 | DD-503 | CUB4S47 | 4DP-3-473 | GEM-4147 | 4TM-S47 |
| C29 | .1 400V | | P488N-1 | DF-104 | CUB4P1 | 4DP-3-104 | GEM-401 | 4TM-P10 |
| C30 | .01 | | BPD-01 | DD-103 | BYA10S1 | CCD-103 | B-110 | 5HK-S10 |
| C31 | .02 | | BPD-02 | DD-203 | BYB6S2 | CCD-203 | B-120 | 5HK-S20 |
| C32 | 68 N2200 10% | | | | | * | | |
| C33 | .0015 10% | | DI-1500 | DD-152 | PM6DI5 | CCD-152 | GP215 | 10TS-D15 |
| C34 | .047 400V | | P488N-047 | DD-503 | CUB4S47 | 4DP-3-473 | GEM-4147 | 4TM-S47 |
| C35 | .001 10% | | DI-1000 | DD-103 | PM6DI | CCD-102 | GP210 | 10TS-D10 |
| C36 | 250 N1500 10% | | | | | * | | |
| C37 | .001 10% | | DI-1000 | DD-102 | PM6DI | CCD-102 | GP210 | 10TS-D10 |
| C38 | 500 10% | | DI-500 | DD-501 | 5R5T5 | CCD-501 | GP350 | 10TS-T50 |
| C39 | .0022 10% | | DI-2200 | | PM6D22 | CCD-222 | JL-222 | 10TS-D22 |
| C40 | .047 400V | | P488N-047 | DD-503 | CUB4S47 | 4DP-3-473 | GEM-4147 | 4TM-S47 |

## FIXED CAPACITORS (cont)

| ITEM No. | RATING | REMARKS | REPLACEMENT DATA AEROVOX PART No. | CENTRALAB PART No. | CORNELL-DUBILIER PART No. | ELMENCO PART No. | MALLORY PART No. | SPRAGUE PART No. |
|---|---|---|---|---|---|---|---|---|
| C41 | .047 400V | | P488N-047 | DD-503 | CUB4S47 | 4DP-3-473 | GEM-4147 | 4TM-S47 |
| C42 | .047 400V | | P488N-047 | DD-503 | CUB4S47 | 4DP-3-473 | GEM-4147 | 4TM-S47 |
| C43 | .0015 1600V | | P1684CM-0015 | DD30-152 | CUB16D47 | 16DP-2-152 | GEM-16215 | MB-DI5 |
| C44 | 47 10% | | DI-47 | DD-470 | L10Q47 | CCD-470 | GP447 | 10TS-Q47 |
| C45 | .01 | | BPD-01 | DD-103 | BYA10S1 | CCD-103 | B-110 | 5HK-S10 |

* Not normally in distributor's stock. Available thru distributor on order to manufacturer.

## CONTROLS

| ITEM No. | RATING RESISTANCE | RATING WATTS | REPLACEMENT DATA Altec Lansing PART No. | CENTRALAB PART No. | CLAROSTAT PART No. | CTS-IRC PART No. | MALLORY PART No. | INSTALLATION NOTES |
|---|---|---|---|---|---|---|---|---|
| R1A | 250K | 1/2 | 13092 | | | | | Loudness, Channel A |
| | 70K Tap | | | | | | | |
| B | 250K | 1/2 | | | | | | Loudness, Channel B |
| | 70K Tap | | | | | | | |
| C | Switch | | | | | | | Power Off-On |
| R2A | 2meg | 1/2 | 13074 | B-76 | AD47-2meg-Z | | FB26A | Bass, Channel A |
| B | 2meg | 1/2 | | SR-76 | Not Req. | | RU26A | Bass, Channel B |
| C | Shaft | | | Not Req. | FS-3 | | CS3500 | |
| R3A | 500K | 1/2 | 13073 | B-60 | AD47-500K-Z | | FB55A | Treble, Channel A |
| B | 500K | 1/2 | | SR-60 | Not Req. | | RU55A | Treble, Channel B |
| C | Shaft | | | Not Req. | FS-3 | | CS3500 | |
| R4A | 250K | 1/2 | 13123 | B-51 | | | | Balance, Channel A |
| B | 250K | 1/2 | | SR-513 | | | | Balance, Channel B |

## RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

| ITEM No. | RATING | REPLACEMENT DATA IRC PART No. | WORKMAN TV PART No. | REMARKS |
|---|---|---|---|---|
| R5 | 1meg | | | |
| R6 | 560K | | | |
| R7 | 10meg | | | |
| R8 | 10meg | | | |
| R9 | 330K | | | |
| R10 | 68K | | | |
| R11 | 330K | | | |
| R12 | 47K | | | |
| R13 | 330K | | | |
| R14 | 3300Ω | | | |
| R15 | 3.3meg | | | |
| R16 | 330K | | | |
| R17 | 33K | | | |
| R18 | 22K | | | |
| R19 | 4.7meg | | | |
| R20 | 220K | | | |
| R21 | 1000Ω | | | |
| R22 | 220K | | | |
| R23 | 470K | | | |
| R24 | 120K | | | |
| R25 | 330K | | | |
| R26 | 3300Ω | | | |
| R27 | 1meg | | | |
| R28 | 100K | | | |
| R29 | 100K | | | |
| R30 | 470K | | | |
| R31 | 470K | | | |
| R32 | 47K | | | |
| R33 | 175Ω 20W | PW20-175 | 30W-SQ175 | |
| R34 | 1meg | | | |

| ITEM No. | RATING | REPLACEMENT DATA IRC PART No. | WORKMAN TV PART No. | REMARKS |
|---|---|---|---|---|
| R35 | 560K | | | |
| R36 | 10meg | | | |
| R37 | 10meg | | | |
| R38 | 330K | | | |
| R39 | 68K | | | |
| R40 | 330K | | | |
| R41 | 47K | | | |
| R42 | 330K | | | |
| R43 | 3300Ω | | | |
| R44 | 3.3meg | | | |
| R45 | 330K | | | |
| R46 | 33K | | | |
| R47 | 22K | | | |
| R48 | 4.7meg | | | |
| R49 | 220K | | | |
| R50 | 220K | | | |
| R51 | 470K | | | |
| R52 | 120K | | | |
| R53 | 330K | | | |
| R54 | 3300Ω | | | |
| R55 | 1meg | | | |
| R56 | 100K | | | |
| R57 | 100K | | | |
| R58 | 470K | | | |
| R59 | 470K | | | |
| R60 | 47K | | | |
| R61 | 4Ω 5W | PW5-4 | 5W-SQ-4 | Note 1 |
| R62 | 100Ω 20W | PW20-100 | 30W-SQ-100 | |
| R63 | 10K 1W | | | |
| R64 | 47K 1W | | | |

Note 1. Not used with power transformer Part #6473.

# PARTS LIST AND DESCRIPTIONS (Continued)

## TRANSFORMER (POWER)

| ITEM No. | RATING | | | REPLACEMENT DATA | | | | | NOTES |
|---|---|---|---|---|---|---|---|---|---|
| | PRI. | SEC. 1 | SEC. 2 | Altec Lansing PART No. | Merit PART No. | Stancor PART No. | Thordarson PART No. | Triad PART No. | |
| T1 | 117V@ 1.65A | 150V@ .900A AC | 6.3VCT @ 4.6A | 6473A ① | | | | | ① Part #6473 used in some versions. |

## TRANSFORMER (AUDIO OUTPUT)

| ITEM No. | IMPEDANCE | | REPLACEMENT DATA | | | | | NOTES |
|---|---|---|---|---|---|---|---|---|
| | PRI. | SEC. [1] | Altec Lansing PART No. | Merit PART No. | Stancor PART No. | Thordarson PART No. | Triad PART No. | |
| T2 | 4900Ω CT | 16Ω Tap@ 8Ω | 16517 | | | | | |
| | | SEC. 2 | | | | | | |
| | | 5-6Ω | | | | | | |
| | | SEC. 1 | | | | | | |
| T3 | 4900Ω CT | 16Ω Tap@ 8Ω | 16517 | | | | | |
| | | SEC. 2 | | | | | | |
| | | 5-6Ω | | | | | | |

## POWER RECTIFIERS

| ITEM No. | RATING | REPLACEMENT DATA | | | | NOTES |
|---|---|---|---|---|---|---|
| | CURRENT (Measured) | Altec Lansing PART No. | RCA PART No. | SARKES TARZIAN PART No. | SYLVANIA PART No. | |
| M1 | .300A | | 1N3195 † | F-6 | SR-500 | † Add 6Ω surge limiter in series with each HV lead. |
| M2 | .300A | | 1N3195 † | F-6 | SR-500 | |

## MISCELLANEOUS

| ITEM No. | PART NAME | Altec Lansing PART No. | NOTES |
|---|---|---|---|
| M3 | Switch | | Mode |
| M4 | Switch | | Stereo Output |
| M5 | Switch | | Reverse |
| M6 | Switch | | Loudness |
| M7 | Switch | | Rumble |
| M8 | Switch | 13075 | Selector |
| M9 | Circuit Breaker | | (2.1A Operating, 3A open) |

## WIRING DATA

General-use Unshielded Hook-up Wire ..... Use BELDEN No. 8530 (Solid) Available in Ten Colors
8524 (Stranded) Available in Ten Colors

Power Cord ..... Use BELDEN No. 1765-B (6 Ft. Length)
1725-K (7½ Ft. Length)

PHOTOFACT® Folder

CALRAD
MODEL AP-15

CALRAD
MODEL AP-15

CALRAD
MODEL AP-15

| | |
|---|---|
| TRADE NAME | Calrad Model AP-15 |
| IMPORTER | California Radio & Electronics Co., 823 N. Highland Ave., Hollywood 38, Calif. |
| TYPE SET | AC Operated 4 Tube Audio Amplifier |
| POWER SUPPLY | 110 – 120 Volts AC, 60 Cycles RATING 47 Watts, .46 Amp. @117 Volts AC |

SET 557 FOLDER 5

**HOWARD W. SAMS & CO., INC.** Indianapolis 6, Indiana

The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed. Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. © 1961 Howard W. Sams & Co., Inc., Indianapolis 6, Indiana. Printed in U.S. of America

KX784

# PARTS LIST AND DESCRIPTIONS

## TUBES

| • GENERAL ELECTRIC • | | | • RAYTHEON • SYLVANIA • | | |
|---|---|---|---|---|---|
| ITEM No. | USE | TYPE | ITEM No. | USE | TYPE |
| V1 | Preamp. -AF Amp. | 12AX7 | V3 | Phase Inv. -Output | 6BM8 |
| V2 | AF Amp. -Output | 6BM8 | V4 | Rectifier | 6CA4 |

## ELECTROLYTIC CAPACITORS

| ITEM No. | RATING | | REPLACEMENT DATA | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | CAP. | VOLT. | CALRAD PART No. | AEROVOX PART No. | CORNELL-DUBILIER PART No. | GENERAL ELECTRIC PART No. | MALLORY PART No. | PYRAMID PART No. | SPRAGUE PART No. |
| C1A | 50 | 350 | | AFH2-59 | B0326 | XC2-33 | FP239 | TMD-2655 | TVL-2767 |
| B | 50 | 350 | | | | | | | |
| C2 | 20 | 350 | | PRSL735 | BR2035 | QT1-10 | TC65 | TD-20-350 | TVA-1608 |
| C3 | 30 | 6 | | PTT27 | NLW30-6 | MT1-14 | TT6X30 | MLV30-6 | TE-1092 |
| C4 | 30 | 6 | | PTT27 | NLW30-6 | MT1-14 | TT6X30 | MLV30-6 | TE-1092 |
| C5 | 25 | 50 | | PTT95 | NLW25-50 | MT1-12 | TC36 | MLV25-50 | TE-1306 |

## FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

| ITEM No. | RATING | REMARKS | REPLACEMENT DATA | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | AEROVOX PART No. | CENTRALAB PART No. | CORNELL-DUBILIER PART No. | ELMENCO PART No. | MALLORY PART No. | SPRAGUE PART No. |
| C6 | .001 500V | | P488N-001 | D6-102 | CUB6D1 | 6DP-1-102 | GEM-621 | 6TM-D10 |
| C7 | 25 10% | | 1469-000025 | TCZ-25 | 22R5T25 | CM-19B-250K | MCB220 | MS-425 |
| C8 | .01 500V | | P688N-01 | D6-103 | CUB6S1 | 6DP-2-103 | GEM-611 | 6TM-S10 |
| C9 | .02 400V | | P488N-02 | DD-203 | CUB4S2 | 4DP-2-203 | GEM-412 | 4TM-S20 |
| C10 | 200 10% | | 1469-0002 | TCZ-200 | 22R5T2 | CM-19B-201K | MCB237 | MS-320 |
| C11 | .002 400V | | P488N-002 | D6-202 | CUB6D2 | 6DP-1-202 | GEM-622 | 6TM-D20 |
| C12 | .002 400V | | P488N-002 | D6-202 | CUB6D2 | 6DP-1-202 | GEM-622 | 6TM-D20 |
| C13 | .02 400V | | P488N-02 | DD-203 | CUB4S2 | 4DP-2-203 | GEM-412 | 4TM-S20 |
| C14 | 50 10% | | 1469-00005 | TCZ-50 | 225RQ5 | CM-19B-500K | MCB225 | MS-450 |
| C15 | .05 400V | | P488N-05 | DD-503 | CUB4S5 | 4DP-3-503 | GEM-415 | 4TM-S50 |
| C16 | .05 400V | | P488N-05 | DD-503 | CUB4S5 | 4DP-3-503 | GEM-415 | 4TM-S50 |

## CONTROLS

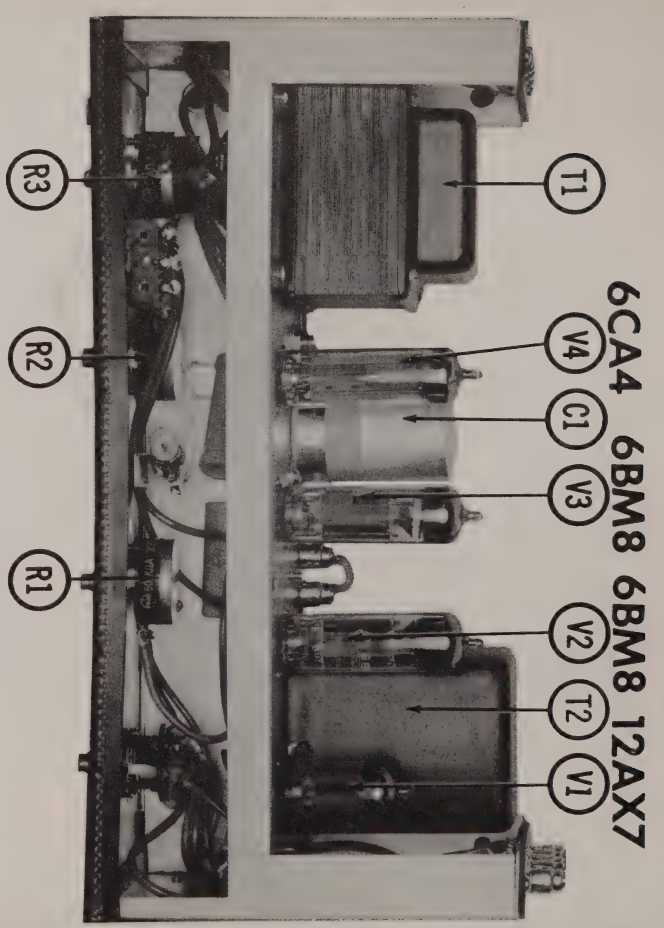
| ITEM No. | RATING | | REPLACEMENT DATA | | | | | INSTALLATION NOTES |
|---|---|---|---|---|---|---|---|---|
| | RESISTANCE | WATTS | CALRAD PART No. | CENTRALAB PART No. | CLAROSTAT PART No. | CTS-IRC PART No. | MALLORY PART No. | |
| R1 | 500K | | | | | | | Volume |
| R2 | 1meg | | | | | | | Bass |
| R3A | 1meg | | | | | | | Treble |
| B | Switch | | | | | | | Power Off -On |
| R4A | 100Ω | 2(WW) | | WN-101 | A43-100 | W11-084 | R100L | Hum Balance |
| B | Shaft | | | Not Req. | FKS-1/4 | SK5 | Not Req. | |

## RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

| ITEM No. | RATING | REPLACEMENT DATA | | REMARKS |
|---|---|---|---|---|
| | | IRC PART No. | WORKMAN TV PART No. | |
| R5 | 47K | | | |
| R6 | 47K | | | |
| R7 | 250K | | | |
| R8 | 3300Ω | | | |
| R9 | 250K | | | |
| R10 | 2meg | | | |

# CHASSIS—TOP VIEW



# PARTS LIST AND DESCRIPTIONS (Continued)

## RESISTORS (cont)

| ITEM No. | RATING | REPLACEMENT DATA | | | ITEM No. | RATING | REPLACEMENT DATA | | |
|---|---|---|---|---|---|---|---|---|---|
| | | IRC PART No. | WORKMAN TV PART No. | REMARKS | | | IRC PART No. | WORKMAN TV PART No. | REMARKS |
| R11 | 250K | | | | R19 | 10K | | | |
| R12 | 3300Ω | | | | R20 | 150K | | | |
| R13 | 100K | | | | R21 | 150K | | | |
| R14 | 10K | | | | R22 | 500K | | | |
| R15 | 100K | | | | R23 | 500K | | | |
| R16 | 250K | | | | R24 | 200Ω 4W | PW4-200Ω | 5W-SQ-200Ω | |
| R17 | 2000Ω | | | | R25 | 50K | | | |
| R18 | 100K | | | | R26 | 1000Ω 2W | | | |

## TRANSFORMER (POWER)

| ITEM No. | RATING | | | REPLACEMENT DATA | | | | | NOTES |
|---|---|---|---|---|---|---|---|---|---|
| | PRI. | SEC. 1 | SEC. 2 | CALRAD PART No. | Merit PART No. | Stancor PART No. | Thordarson PART No. | Triad PART No. | |
| T1 | 117V @ .46A | 420VCT @ .085A DC | 6.3V @ .9A | | | | | | |
| | SEC. 3 | SEC. 4 | SEC. 5 | | | | | | |
| | 6.3V @ 1.9A Tap @ 4V @ .350A | | | | | | | | |

## TRANSFORMER (AUDIO OUTPUT)

| ITEM No. | IMPEDANCE | | REPLACEMENT DATA | | | | | NOTES |
|---|---|---|---|---|---|---|---|---|
| | PRI. | SEC. | CALRAD PART No. | Merit PART No. | Stancor PART No. | Thordarson PART No. | Triad PART No. | |
| T2 | 4700Ω CT | 16Ω Tap @ 8Ω, 4Ω | | | | | | |

## FUSES

| ITEM No. | TYPE | RATING | REPLACEMENT DATA | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | CALRAD PART No. | | LITTELFUSE PART No. | | BUSS PART No. | |
| | | | FUSE | HOLDER | FUSE | HOLDER | FUSE | HOLDER |
| M1 | 3AG | 1A 250V P/T | | | 318001 (3AG 1A 250V) | | GJV 1 | |

## MISCELLANEOUS

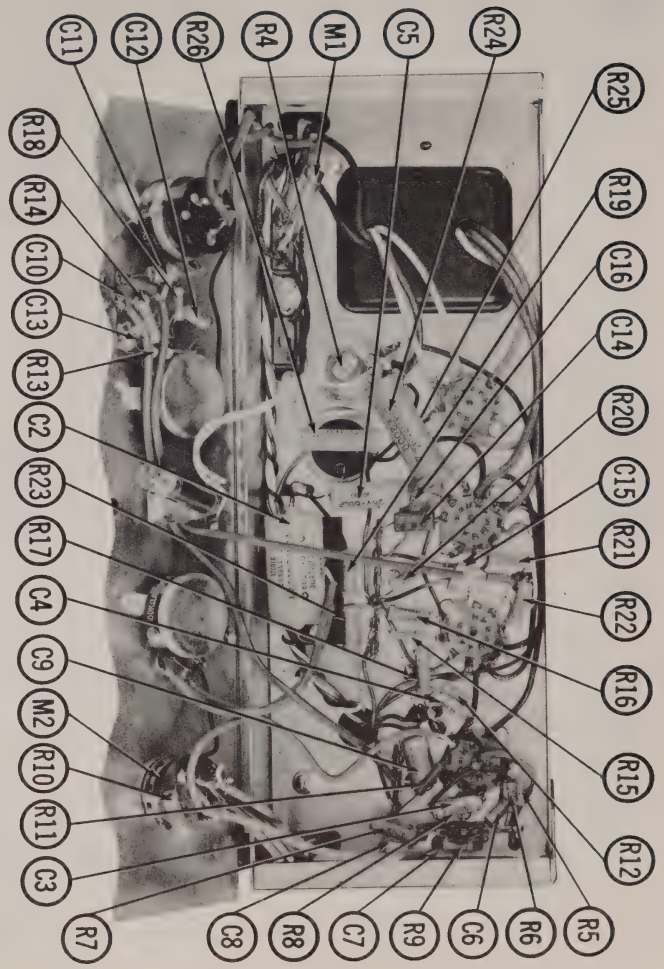
| ITEM No. | PART NAME | CALRAD PART No. | NOTES |
|---|---|---|---|
| M2 | Switch | | Function Selector (Rotary Type) |

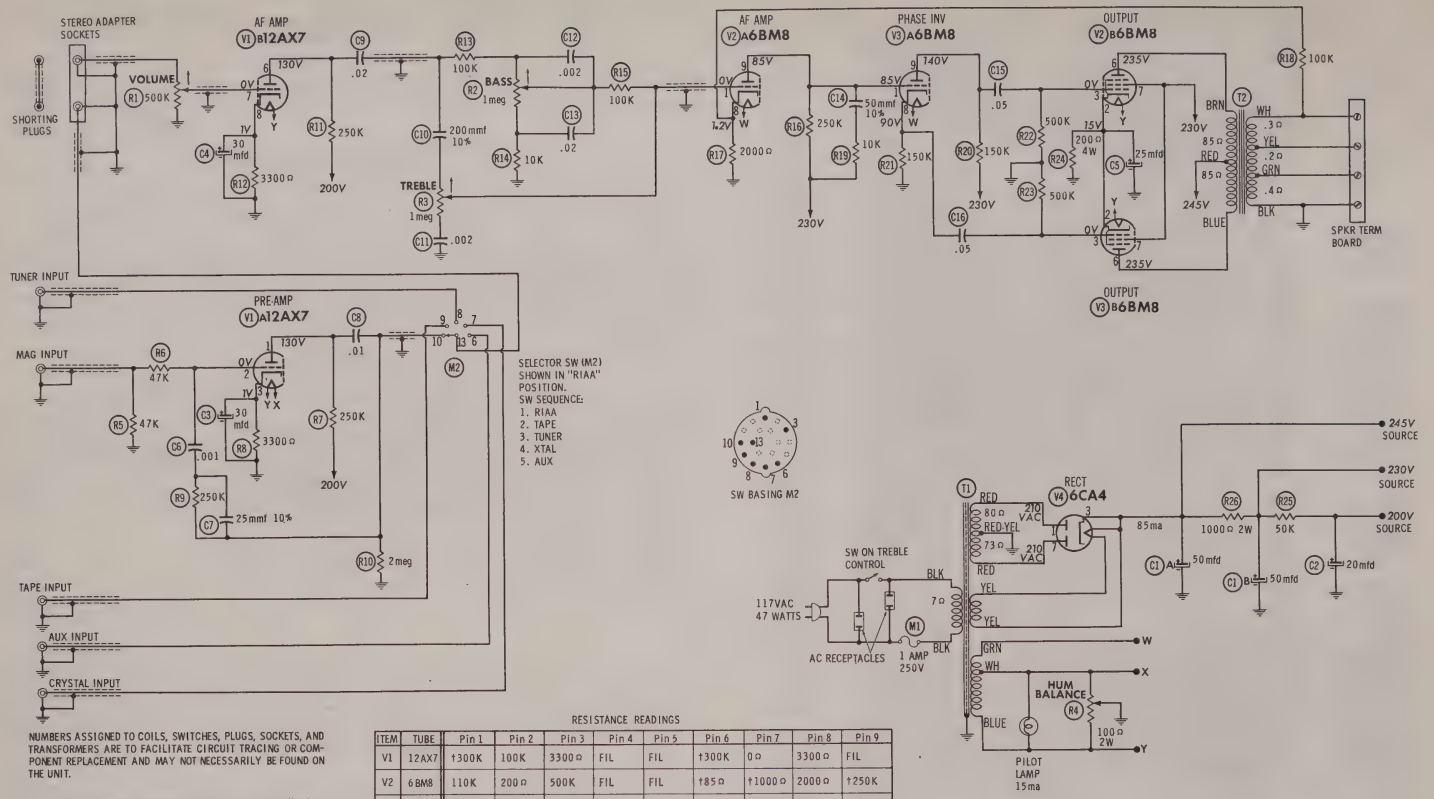
## WIRING DATA

General-use Unshielded Hook-up Wire ..... Use BELDEN No. 8530 (Solid) Available in Ten Colors
8524 (Stranded) Available in Ten Colors

Power Cord ..... Use BELDEN No. 1765-B (6 Ft. Length)
1725-K (7½ Ft. Length)

## CHASSIS—BOTTOM VIEW






NUMBERS ASSIGNED TO COILS, SWITCHES, PLUGS, SOCKETS, AND TRANSFORMERS ARE TO FACILITATE CIRCUIT TRACING OR COMPONENT REPLACEMENT AND MAY NOT NECESSARILY BE FOUND ON THE UNIT.

1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured with 1000 ohm per volt voltmeter.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common ground.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance of component values makes possible a variation of ±15% in voltage and resistance readings.
6. All controls at minimum, proper output load connected.

RESISTANCE READINGS

| ITEM | TUBE | Pin 1 | Pin 2 | Pin 3 | Pin 4 | Pin 5 | Pin 6 | Pin 7 | Pin 8 | Pin 9 |
|---|---|---|---|---|---|---|---|---|---|---|
| V1 | 12AX7 | †300K | 100K | 3300Ω | FIL | FIL | †300K | 0Ω | 3300Ω | FIL |
| V2 | 6BM8 | 110K | 200Ω | 500K | FIL | FIL | †85Ω | †1000Ω | 2000Ω | †250K |
| V3 | 6BM8 | †250K | 200Ω | 500K | FIL | FIL | †85Ω | †1000Ω | 150K | †150K |
| V4 | 6CA4 | 80Ω | NC | ¶ INF | FIL | FIL | NC | 73Ω | NC | NC |

¶ THIS READING WILL VARY DEPENDING UPON THE CONDITION OF THE ELECTROLYTIC IN THE CIRCUIT.
† MEASURED FROM PIN 3 OF V4. NC NO CONNECTION

A PHOTOFACT STANDARD NOTATION SCHEMATIC

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**CALRAD MODEL AP-15**

PHOTOFACT® Folder

**DELMONICO
MODEL NT-5**

DELMONICO
MODEL NT-5

DELMONICO
MODEL NT-5

| | |
|---|---|
| TRADE NAME | Delmonico Model NT-5 |
| IMPORTER | Delmonico International, Div. of Thompson-Starrett Co., Inc., 120-20 Roosevelt Ave., Corona 68, N.Y. |
| TYPE SET | AC-DC Operated 5 Tube AM Receiver |
| POWER SUPPLY | 110 - 120 Volts AC-DC RATING 26 Watts, .26 Amp. @ 117 Volts AC |
| TUNING RANGE—BROADCAST | 540 — 1600KC |

# ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading.

Suggested Alignment Tools: A1, A2, A3, A5....GENERAL CEMENT #8721, 8722
WALSCO #2519
A4, A7..... GENERAL CEMENT #5004, 5008, 5009
WALSCO #2520

| | SIGNAL GENERATOR COUPLING | SIGNAL GENERATOR FREQUENCY | RADIO DIAL SETTING | OUTPUT METER | ADJUST | REMARKS |
|---|---|---|---|---|---|---|
| 1. | High side thru .1mfd to pin 7 (grid) of Converter. Low side to chassis. | 455KC (400~ Mod.) | Tuning gang fully open. | Across voice coil. | A1, A2, A3 | Adjust for maximum output. |
| 2. | Fashion loop of several turns of wire and radiate signal into loop of receiver. | 1600KC | 1600KC | " | A4 | Adjust for maximum output. |
| 3. | " | 600KC | 600KC | " | A5, A6 | Adjust for maximum output. A6 is adjusted by moving coil along ferrite core. |
| 4. | " | 1400KC | 1400KC | " | A7 | Adjust for maximum output. Repeat Steps 2, 3 and 4. |

**HOWARD W. SAMS & CO., INC.** Indianapolis 6, Indiana

The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of KG832

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SET 557 FOLDER 6

# PARTS LIST AND DESCRIPTIONS

## TUBES

| ITEM No. | USE | TYPE (GENERAL ELECTRIC • RAYTHEON • SYLVANIA) |
|---|---|---|
| V1 | Converter | 12BE6 |
| V2 | IF Amplifier | 12BA6 |
| V3 | Det.-AVC-AF Amp. | 12AV6 |
| V4 | Output | 50C5 |
| V5 | Rectifier | 35W4 |

## ELECTROLYTIC CAPACITORS

| ITEM No. | RATING CAP. | RATING VOLT. | REPLACEMENT DATA: DELMONICO PART No. | AEROVOX PART No. | CORNELL-DUBILIER PART No. | GENERAL ELECTRIC PART No. | MALLORY PART No. | PYRAMID PART No. | SPRAGUE PART No. |
|---|---|---|---|---|---|---|---|---|---|
| C1A | ◂40 | 150 | | AFH3-08 | C0070 | XC3-28 | FP311.4 | TMT-3121 | TVL-3437 |
| B | ■20 | 150 | | | | | | | |
| C | ▴20 | 150 | | | | | | | |

## FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

| ITEM No. | RATING | REMARKS | REPLACEMENT DATA: AEROVOX PART No. | CENTRALAB PART No. | CORNELL-DUBILIER PART No. | ELMENCO PART No. | MALLORY PART No. | SPRAGUE PART No. |
|---|---|---|---|---|---|---|---|---|
| C2 | .05 | | BPD-05 | DD-503 | CUB2S5 | 4DP-3-503 | GP150 | 5HK-S50 |
| C3 | 100 10% | | NPO-SI 100 | D6-101 | L10T1 | CCD-101 | GP310 | 10TS-T10 |
| C4 | 150 10% | | NPO-SI 150 | D6-151 | L10T15 | CCD-151 | GP315 | 10TS-T15 |
| C5 | 100 10% | | NPO-SI 100 | D6-101 | L10T1 | CCD-101 | GP310 | 10TS-T10 |
| C6 | 250 10% | | NPO-SI 240 | D6-251 | L10T25 | CCD-251 | GP325 | 10TS-T25 |
| C7 | .002 | | BPD-002 | DD-202 | BYA10D2 | CCD-202 | B-220 | 5HK-D20 |
| C8 | 250 10% | | NPO-SI 240 | D6-251 | L10T25 | CCD-251 | GP325 | 10TS-T25 |
| C9 | .002 | | BPD-002 | DD-202 | BYA10D2 | CCD-202 | B-220 | 5HK-D20 |
| C10 | .002 | | BPD-002 | DD-202 | BYA10D2 | CCD-202 | B-220 | 5HK-D20 |
| C11 | .05 600V | | P688N-05 | DD-503 | CUB6S5 | 6DP-3-503 | GEM-615 | 6TM-S50 |

## CONTROLS

| ITEM No. | RATING: RESISTANCE | RATING: WATTS | REPLACEMENT DATA: DELMONICO PART No. | CENTRALAB PART No. | CLAROSTAT PART No. | CTS-IRC PART No. | MALLORY PART No. | INSTALLATION NOTES |
|---|---|---|---|---|---|---|---|---|
| R1 | 500K | ½ | | | | | | Volume & Switch |

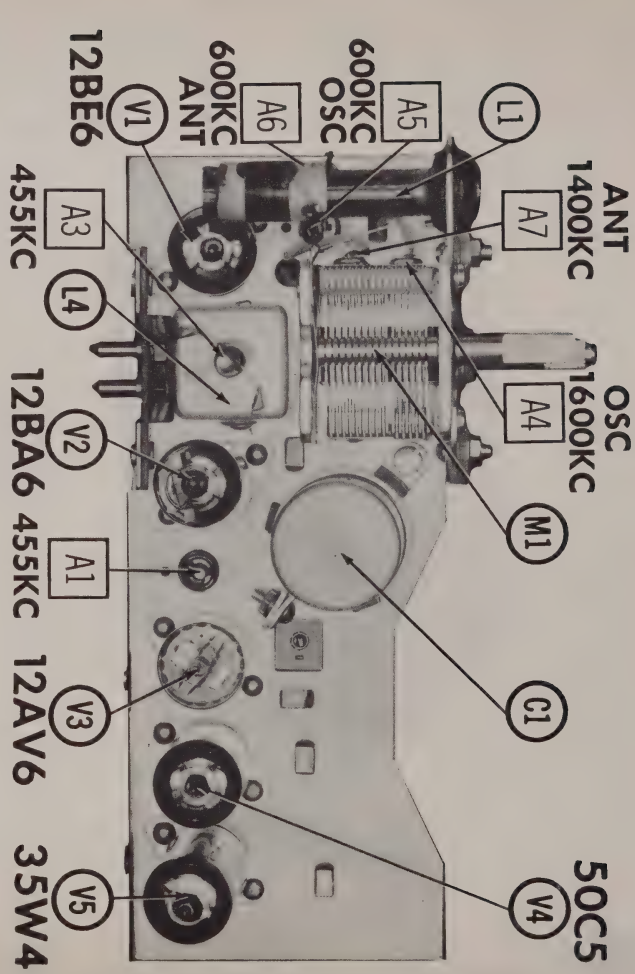
## RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

| ITEM No. | RATING | REPLACEMENT DATA: IRC PART No. | WORKMAN TV PART No. | REMARKS |
|---|---|---|---|---|
| R2 | 20K | | | |
| R3 | 1meg | | | |
| R4 | 100K | | | |
| R5 | 5meg | | | |

| ITEM No. | RATING | REPLACEMENT DATA: IRC PART No. | WORKMAN TV PART No. | REMARKS |
|---|---|---|---|---|
| R6 | 250K | | | |
| R7 | 500K | | | |
| R8 | 180Ω | | | |
| R9 | 2000Ω 2W | | | |

# CHASSIS—TOP VIEW



## PARTS LIST AND DESCRIPTIONS (Continued)

### COILS (RF-IF)

| ITEM No. | USE | REPLACEMENT DATA | | | | | NOTES |
|---|---|---|---|---|---|---|---|
| | | DELMONICO PART No. | Merit PART No. | Miller PART No. | Stancor PART No. | Workman TV PART No. | |
| L1<br>L2<br>L3<br>L4<br>L5 | Loopstick<br>Osc.<br>RF Choke(1uh)<br>Input IF<br>Output IF | | BC-393<br>BC-561<br>BC-352 | 70-OSC<br>4602<br>12-C1 | RTC-8647<br>RTC-8515<br>RTC-8632 | T512<br>T855<br>T607 | |

### TRANSFORMER (AUDIO OUTPUT)

| ITEM No. | IMPEDANCE | | REPLACEMENT DATA | | | | | NOTES |
|---|---|---|---|---|---|---|---|---|
| | PRI. | SEC. | DELMONICO PART No. | Merit PART No. | Stancor PART No. | Thordarson PART No. | Triad PART No. | |
| T1 | 2100Ω | 10-12Ω | | | | | S-62X | |

### SPEAKER

| ITEM No. | TYPE | | | REPLACEMENT DATA | | NOTES |
|---|---|---|---|---|---|---|
| | SIZE | FIELD | V. C. IMP. | DELMONICO PART No. | QUAM PART No. | |
| SP1 | 3½" | PM | 10-12Ω | | 3A07Z8 | |

### MISCELLANEOUS

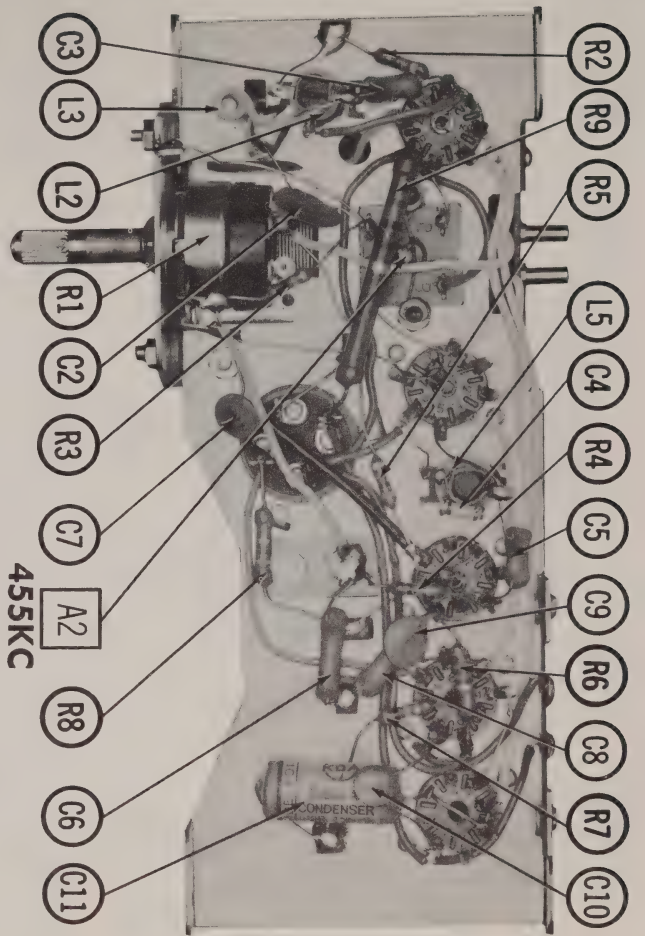
| ITEM No. | PART NAME | DELMONICO PART No. | NOTES |
|---|---|---|---|
| M1 | Tuning Cap. | | 2 Gang (Ant. 14-228mmf, Osc. 11-102mmf) |

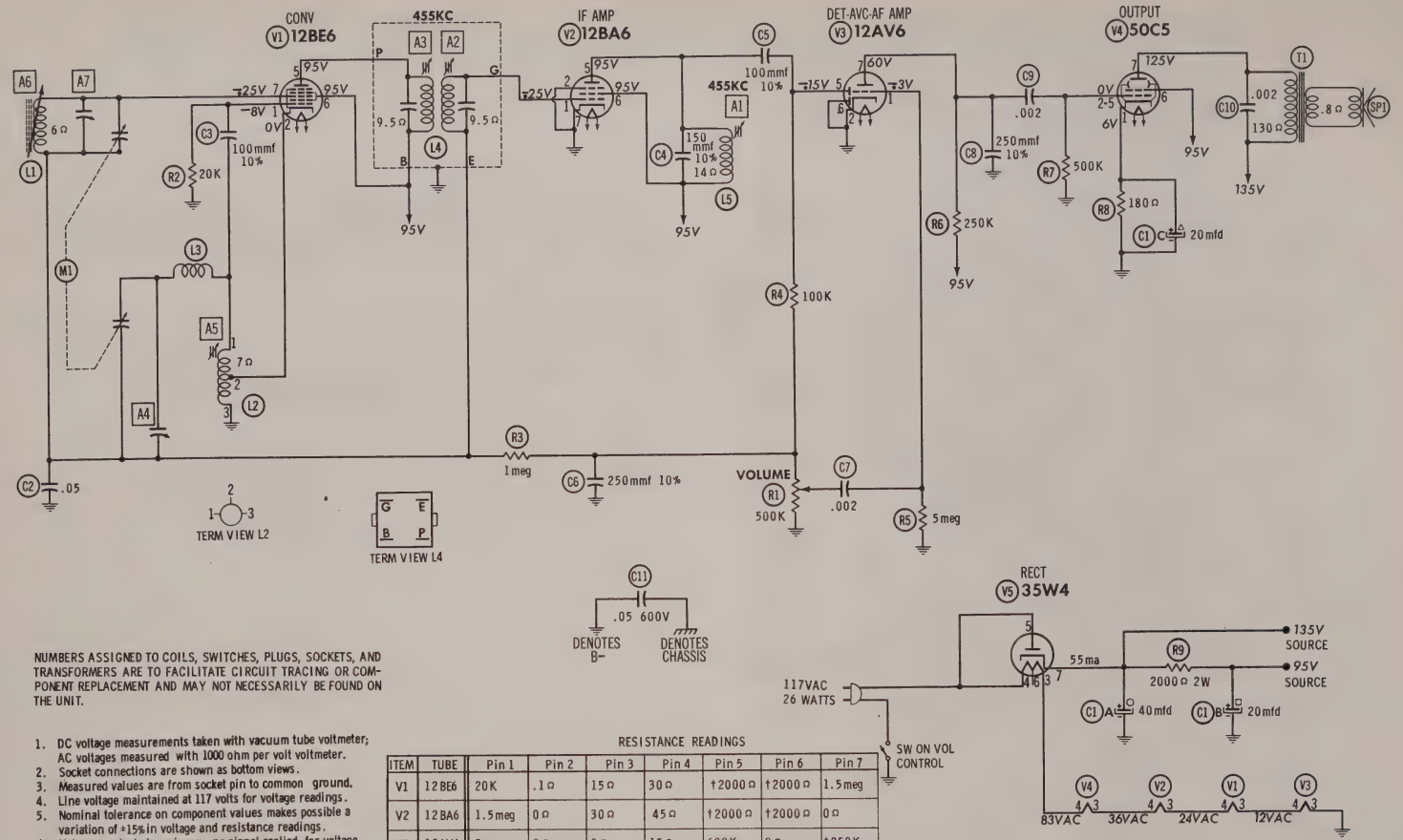
### WIRING DATA

General-use Unshielded Hook-up Wire ..... Use BELDEN No. 8530 (Solid) Available in Ten Colors
8524 (Stranded) Available in Ten Colors

Power Cord ..... Use BELDEN No. 1765-B (6 Ft. Length)
1725-K (7½ Ft. Length)

## CHASSIS—BOTTOM VIEW






NUMBERS ASSIGNED TO COILS, SWITCHES, PLUGS, SOCKETS, AND TRANSFORMERS ARE TO FACILITATE CIRCUIT TRACING OR COMPONENT REPLACEMENT AND MAY NOT NECESSARILY BE FOUND ON THE UNIT.

1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured with 1000 ohm per volt voltmeter.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common ground.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ±15% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

RESISTANCE READINGS

| ITEM | TUBE | Pin 1 | Pin 2 | Pin 3 | Pin 4 | Pin 5 | Pin 6 | Pin 7 |
|---|---|---|---|---|---|---|---|---|
| V1 | 12BE6 | 20K | .1Ω | 15Ω | 30Ω | †2000Ω | †2000Ω | 1.5meg |
| V2 | 12BA6 | 1.5meg | 0Ω | 30Ω | 45Ω | †2000Ω | †2000Ω | 0Ω |
| V3 | 12AV6 | 5meg | 0Ω | 0Ω | 15Ω | 600K | 0Ω | †250K |
| V4 | 50C5 | 180Ω | 500K | 45Ω | 110Ω | 500K | †2000Ω | †130Ω |
| V5 | 35W4 | TP | NC | 110Ω | 150Ω | 150Ω | NC | ¶ INF |

¶ THIS READING WILL VARY DEPENDING UPON THE CONDITION OF THE ELECTROLYTIC IN THE CIRCUIT.
† MEASURED FROM PIN 7 OF V5. NC NO CONNECTION TP TIE POINT

A PHOTOFACT STANDARD NOTATION SCHEMATIC

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**DELMONICO MODEL NT-5**

PHOTOFACT® Folder

# HOFFMAN MODELS B8014, M8014, SP8014, W8014 (Ch. 1154, 1155)

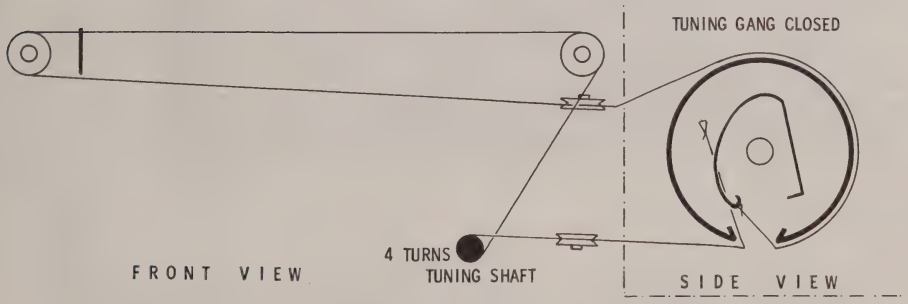
HOFFMAN MODELS B8014, M8014, SP8014, W8014 (Ch. 1154, 1155)

| | | | |
|---|---|---|---|
| TRADE NAME | Hoffman Models B8014, M8014, SP8014, W8014 (Tuner Ch. 1155, Amp. Ch. 1154) | | |
| MANUFACTURER | Hoffman Electronics Corp., Consumer Products Div., 6200 S. Avalon Blvd., Los Angeles 3, Calif. | | |
| TYPE SET | AC Operated 8 Tube FM-AM Tuner, 4 Tube Stereo Amplifier and 4 Speed Automatic Record Changer | | |
| POWER SUPPLY | 110 - 120 Volts AC, 60 Cycles | RATING | 110 Watts, 1 Amp. @ 117 Volts AC |
| TUNING RANGE—BROADCAST | 540 - 1600KC | FREQ. MOD. | 88 — 108MC |

FOR SERVICE INFORMATION ON RECORD CHANGER PART #990015 — SEE SIMILAR GLASER-STEERS GS-77 (REVISED) — PHOTOFACT SET 482 FOLDER 11

HOFFMAN MODELS B8014, M8014, SP8014, W8014 (Ch. 1154, 1155)

## DIAL CORD STRINGING

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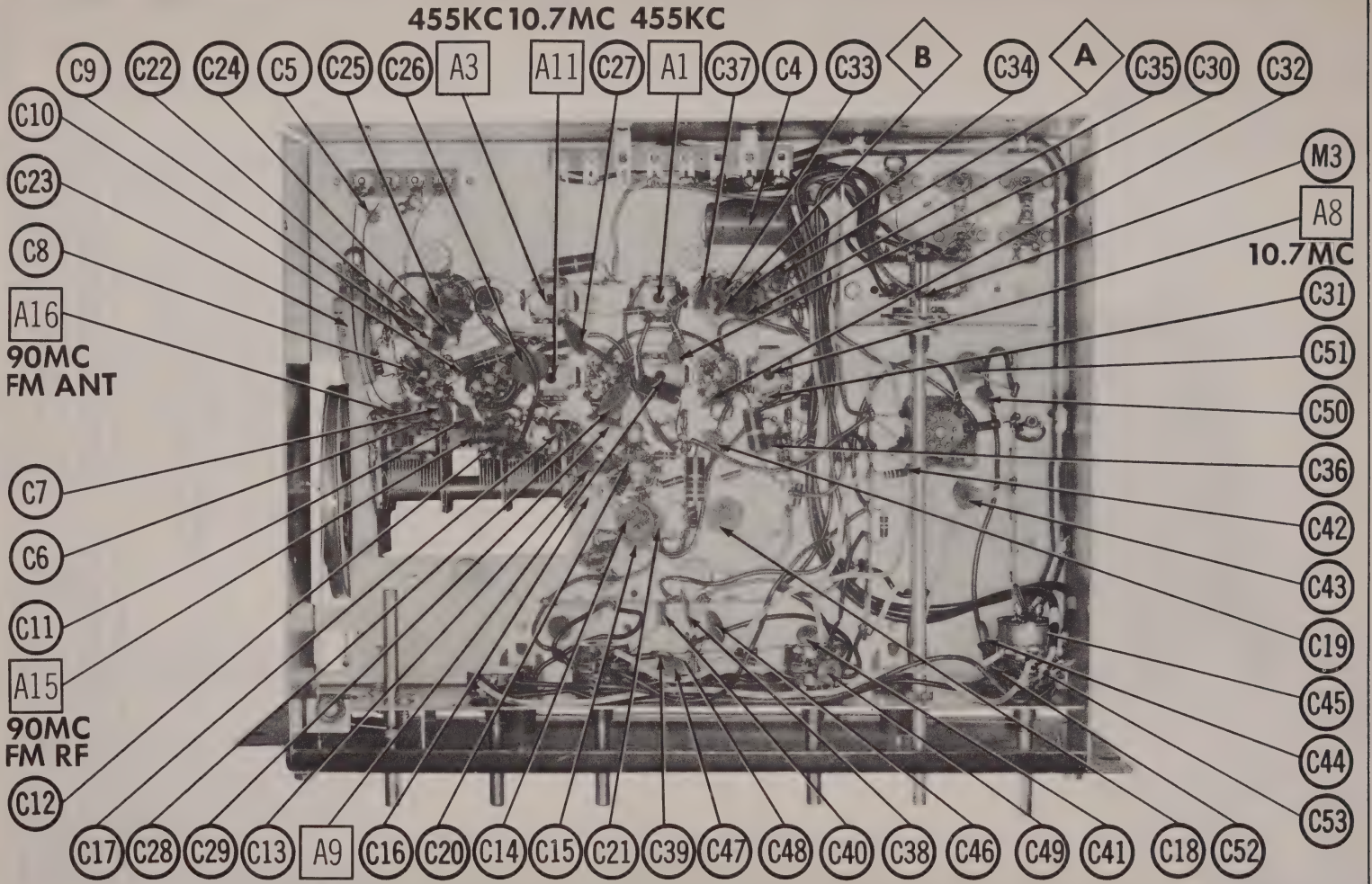
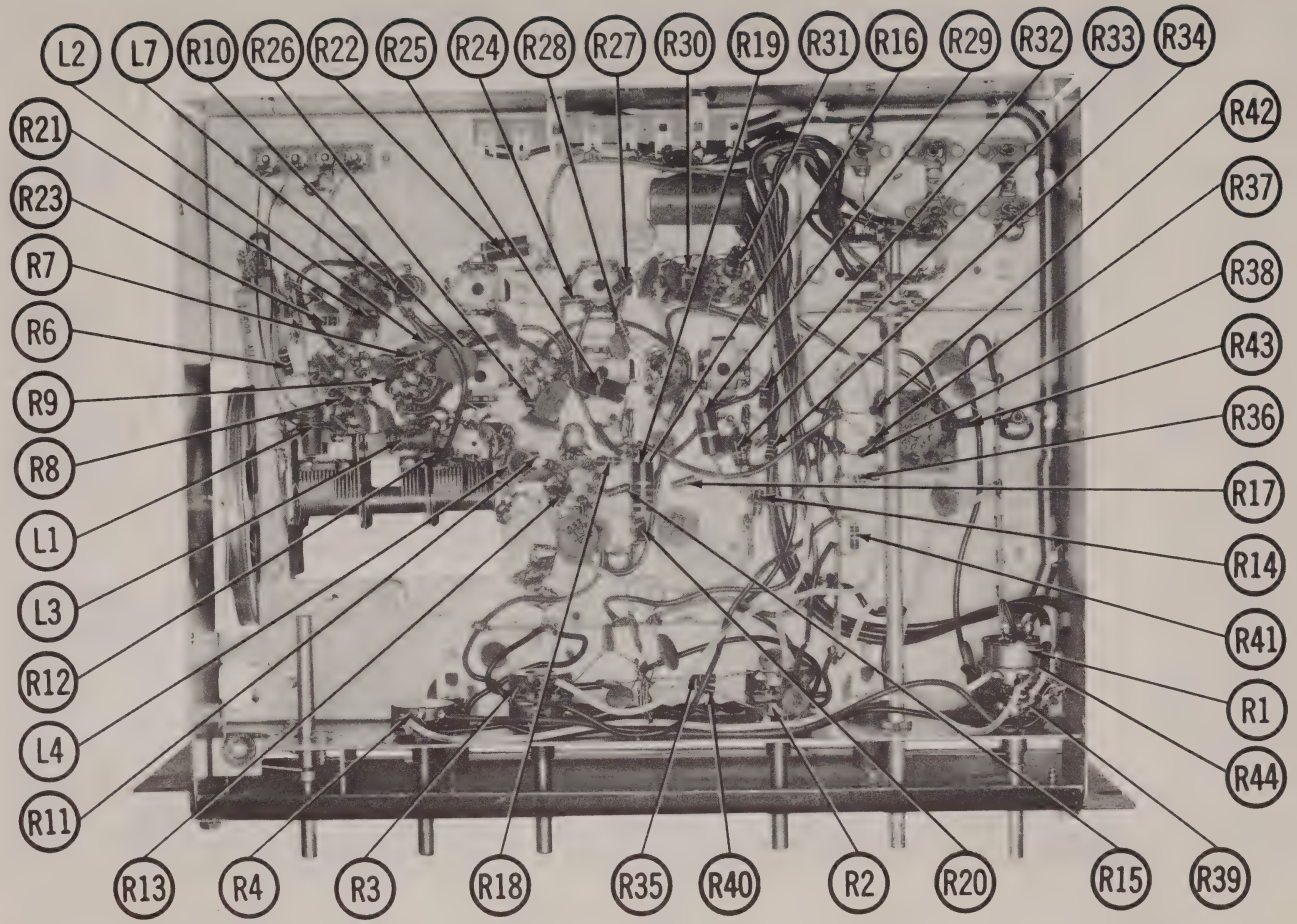
KN802



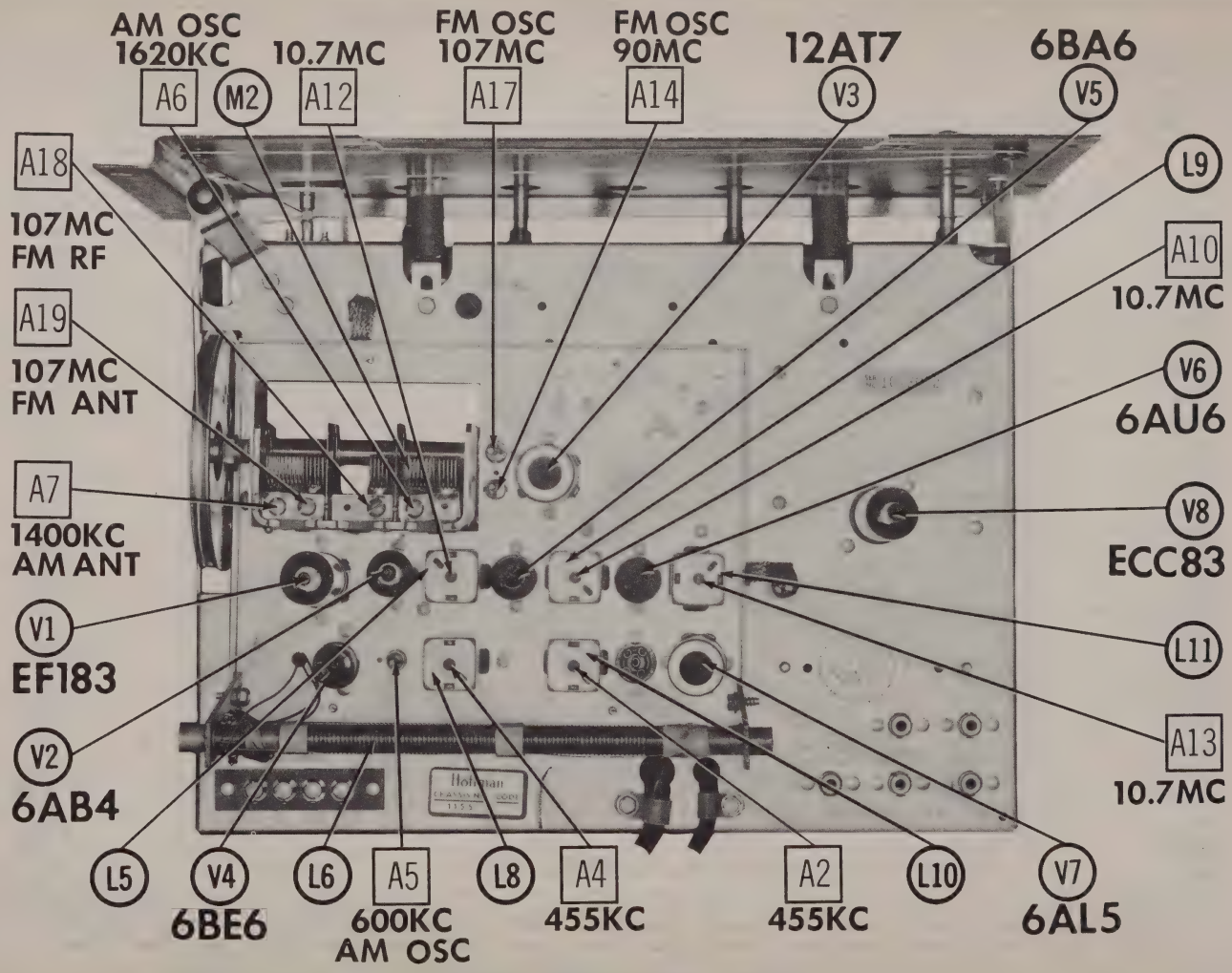
SET 557 FOLDER 7




TUNER CHASSIS BOTTOM VIEW-ALIGN., CAPACITOR & MISC. IDENT.




TUNER CHASSIS BOTTOM VIEW-RESISTOR & INDUCTOR IDENT.




TUNER CHASSIS-TOP VIEW

# ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Use only enough generator output to provide a usable indication.

Suggested Alignment Tools:
- A1 thru A4 and A8 thru A13.... GENERAL CEMENT #5097, 8727 WALSCO #2515
- A5, A14, A17..... GENERAL CEMENT #8721, 8722 WALSCO #2519
- A6, A7, A18, A19..... GENERAL CEMENT #5004, 5008, 5009 WALSCO #2520
- A15, A16..... GENERAL CEMENT #8282, 8606, 8606-L, 9295, 9440 WALSCO #2526, 2543, 2544, 2545

AM ALIGNMENT — SELECTOR IN AM POSITION

| | SIGNAL GENERATOR COUPLING | SIGNAL GENERATOR FREQUENCY | RADIO DIAL SETTING | OUTPUT METER | ADJUST | REMARKS |
|---|---|---|---|---|---|---|
| 1. | High side thru .01mfd to pin 7 (grid) of AM Converter. Low side to chassis. | 455KC (400~ 30% AM) | (AM) Tuning gang fully open. | Across voice coil. | A1, A2, A3, A4 | Adjust for maximum output. |
| 2. | High side thru 150mmf to AM antenna terminal. Low side to chassis. | 600KC | 600KC | " | A5 | " |
| 3. | " | 1620KC | 1620KC | " | A6 | " |
| 4. | " | 1400KC | 1400KC | " | A7 | Adjust for maximum output. Repeat Steps 2, 3 and 4. |

FM IF ALIGNMENT USING AM SIGNAL GENERATOR AND VTVM — SELECTOR IN FM POSITION

| | SIGNAL GENERATOR COUPLING | SIGNAL GENERATOR FREQUENCY | RADIO DIAL SETTING | CONNECT VTVM | ADJUST | REMARKS |
|---|---|---|---|---|---|---|
| 5. | High side thru .01mfd to FM RF stator lug of tuning gang. Low side to chassis. | 10.7MC (Unmod.) | (FM) Point of non-interference. | DC probe to point Ⓐ. Common to chassis. | A8, A9, A10, A11, A12 | Adjust for maximum deflection. |
| 6. | " | " | " | DC probe to point Ⓑ. Common to chassis. | A13 | Adjust for zero reading. A positive and negative reading will be obtained on either side of the correct setting. |

FM IF ALIGNMENT USING FM SIGNAL GENERATOR AND OSCILLOSCOPE — SELECTOR IN FM POSITION

Use frequency modulated signal with 60~ modulation and 450KC sweep. Use 120~ sawtooth voltage in scope for horizontal deflection.

| | SIGNAL GENERATOR COUPLING | SIGNAL GENERATOR FREQUENCY | RADIO DIAL SETTING | CONNECT SCOPE | ADJUST | REMARKS |
|---|---|---|---|---|---|---|
| 5. | High side thru .01mfd to FM RF stator lug of tuning gang. Low side to chassis. | 10.7MC (450KC Swp) | (FM) Point of non-interference. | Vert. amp. to point Ⓐ. Low side to chassis. | A8, A9, A10, A11, A12 | Disconnect stabilizing capacitor C4. Adjust for maximum gain and symmetry of response similar to Fig. 1 with markers as shown. Reconnect C4. |
| 6. | " | " | " | Vert. amp. to point Ⓑ. Low side to chassis. | A13 | Adjust to place marker at the center of crossover lines similar to Fig. 2. SLIGHTLY retouch A8 for maximum amplitude and straightness of cross-over lines. |

FM RF ALIGNMENT — SELECTOR IN FM POSITION

| | SIGNAL GENERATOR COUPLING | SIGNAL GENERATOR FREQUENCY | RADIO DIAL SETTING | CONNECT VTVM | ADJUST | REMARKS |
|---|---|---|---|---|---|---|
| 7. | Across FM antenna terminals with 120Ω in each lead. | 90MC (Unmod.) | (FM) 90MC | DC probe to point Ⓐ. Common to chassis. | A14, A15, A16 | Adjust for maximum deflection. |
| 8. | " | 107MC | 107MC | " | A17, A18, A19 | Adjust for maximum deflection. Repeat Steps 7 and 8. |

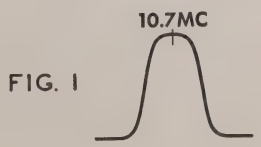


FIG. 1

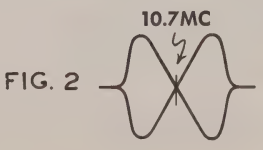
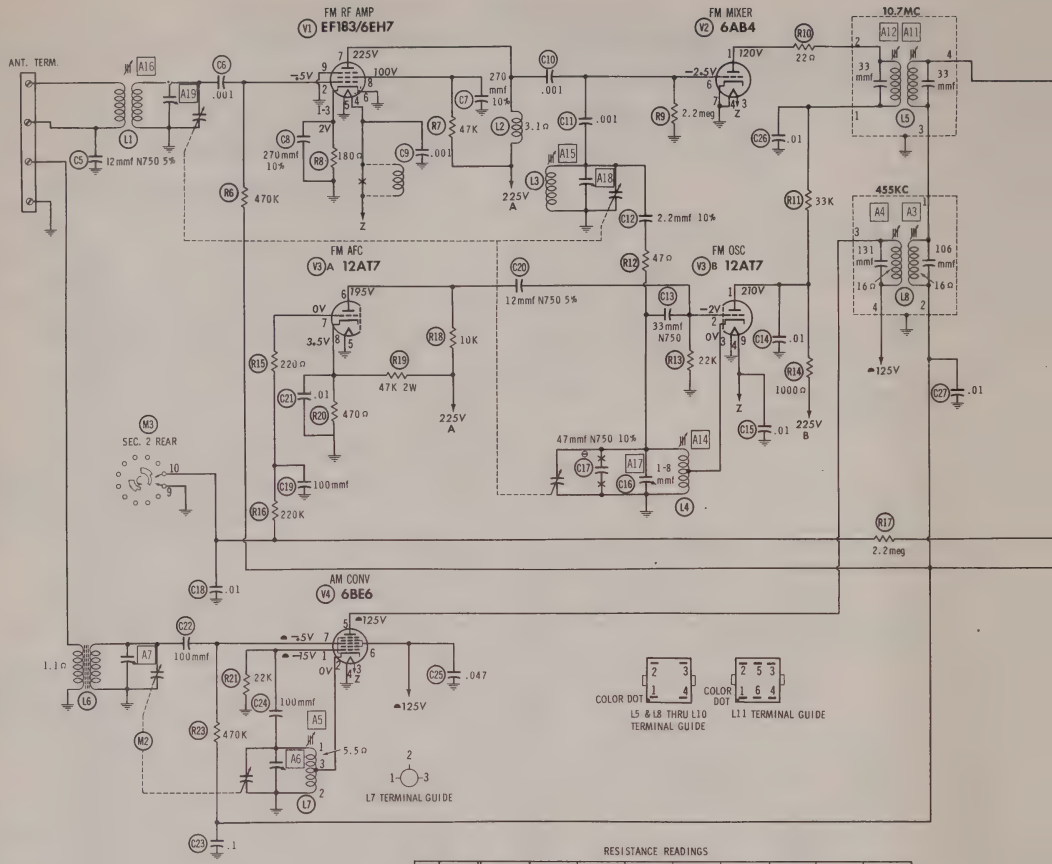


FIG. 2




RESISTANCE READINGS

| ITEM | TUBE | Pin 1 | Pin 2 | Pin 3 | Pin 4 | Pin 5 | Pin 6 | Pin 7 | Pin 8 | Pin 9 |
|---|---|---|---|---|---|---|---|---|---|---|
| V1 | EF183 6EH7 | 180Ω | 2.8meg | 180Ω | FIL | FIL | 0Ω | †1000Ω | †48K | 0Ω |
| V2 | 6AB4 | †35K | 0Ω | FIL | FIL | 0Ω | 2.2meg | 0Ω | | |
| V3 | 12AT7 | †2000Ω | 22K | .1Ω | FIL | FIL | †11K | 220K ■2.5meg | 470Ω | FIL |
| V4 | 6BE6 | 22K | .3Ω | FIL | FIL | ▬†9200Ω | ▬†9200Ω | 2.8meg | | |
| V5 | 6BA6 | 2.3meg | 0Ω | FIL | FIL | †9200Ω | †9200Ω | 68Ω | | |
| V6 | 6AU6 | 115K | 0Ω | FIL | FIL | †9200Ω ▬†INF | †9200Ω ▬†INF | 0Ω | | |
| V7 | 6AL5 | 6800Ω | 6800Ω | FIL | FIL | 168K | 0Ω | 168K | | |
| V8 | ECC83 12AX7 | †220K | 470K | 1500Ω | FIL | FIL | †220K | 470K | 1500Ω | FIL |

ALL MEASUREMENTS TAKEN IN "FM" POSITION UNLESS OTHERWISE DESIGNATED.
▬ MEASURED IN "AM" POSITION.
■ MEASURED IN "AFC" POSITION.
† MEASURED FROM PIN 2 OF V12.

NUMBERS ASSIGNED TO COILS, SWITCHES, PLUGS, SOCKETS, AND TRANSFORMERS ARE TO FACILITATE CIRCUIT TRACING OR COMPONENT REPLACEMENT AND MAY NOT NECESSARILY BE FOUND ON THE UNIT.

Θ SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM

ARROWS ON CONTROLS INDICATE CLOCKWISE ROTATION (CONTROL VIEWED FROM SHAFT END)

1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured with 1000 ohm per volt voltmeter.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common ground.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ±15% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

A PHOTOFACT STANDARD NOTATION SCHEMATIC

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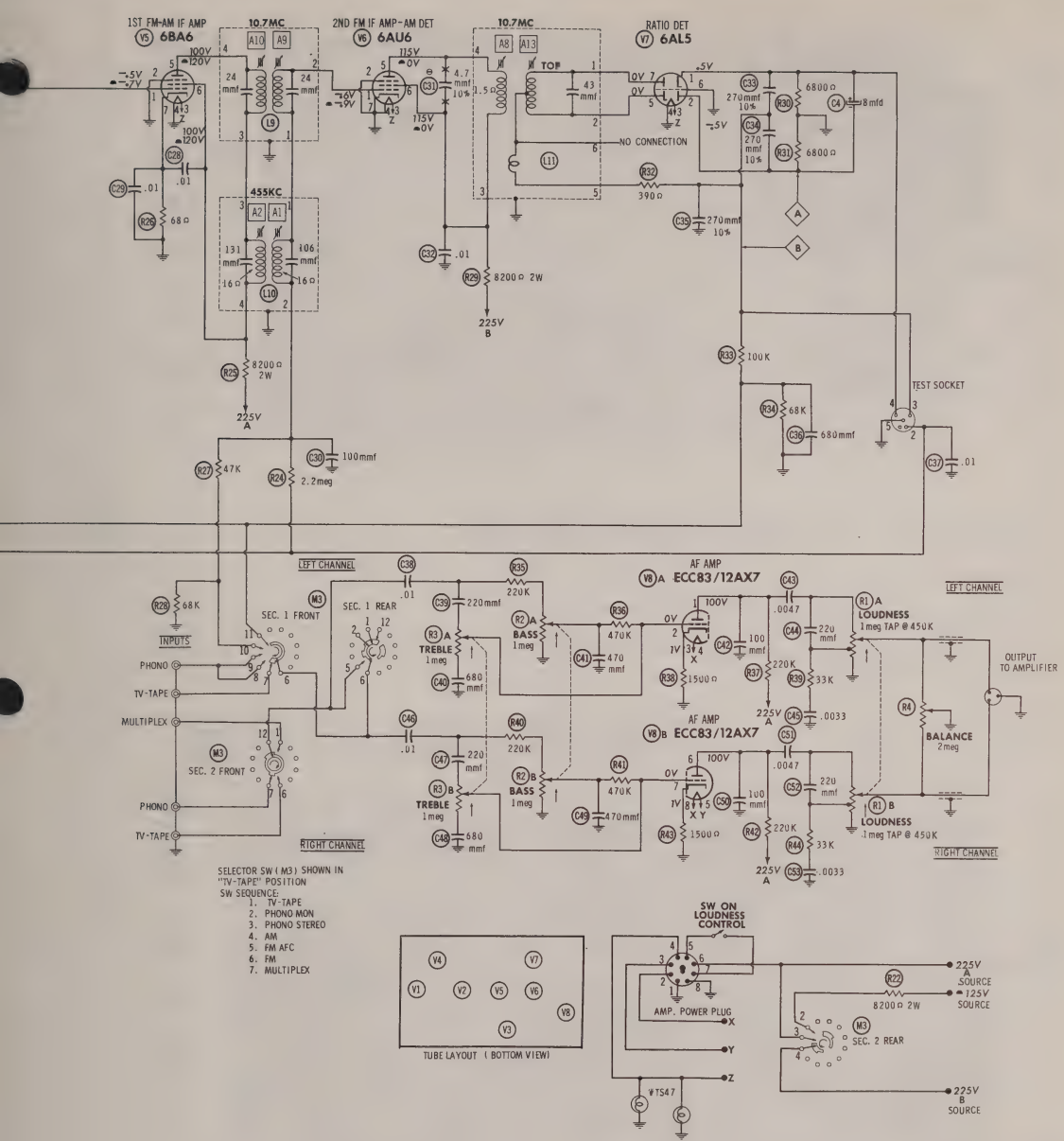
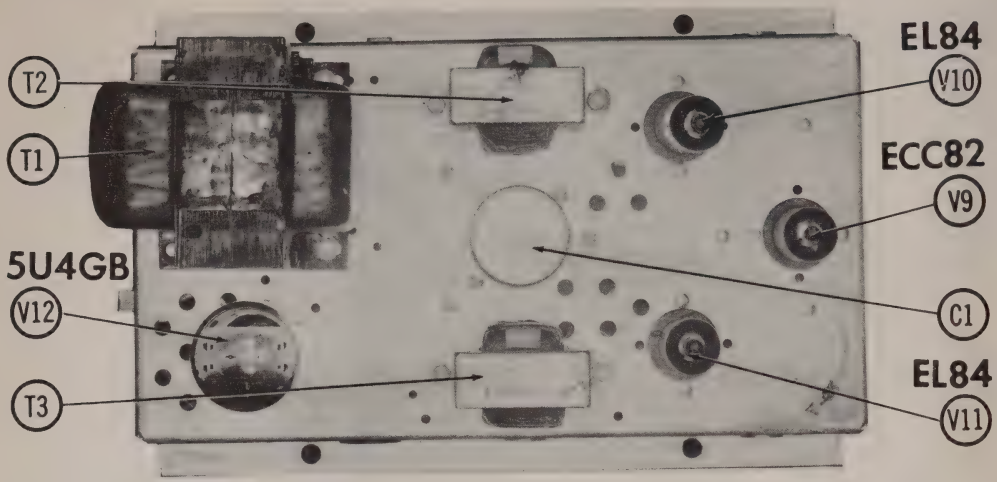
# TUNER SCHEMATIC

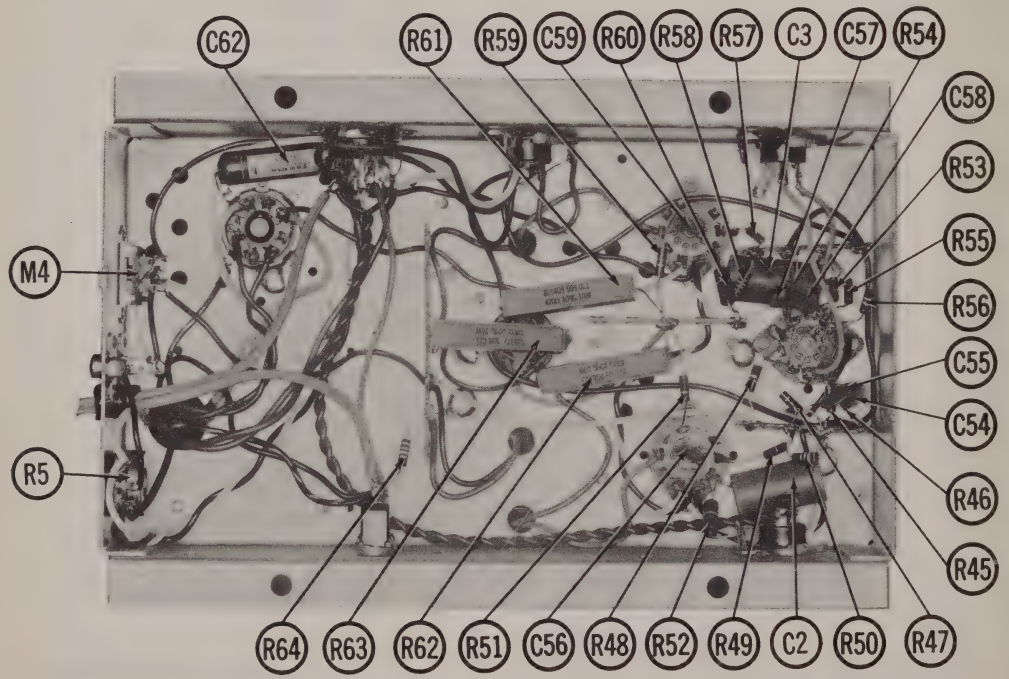



HOFFMAN MODELS B8014, M8014,
SP8014, W8014 (Ch. 1154, 1155)

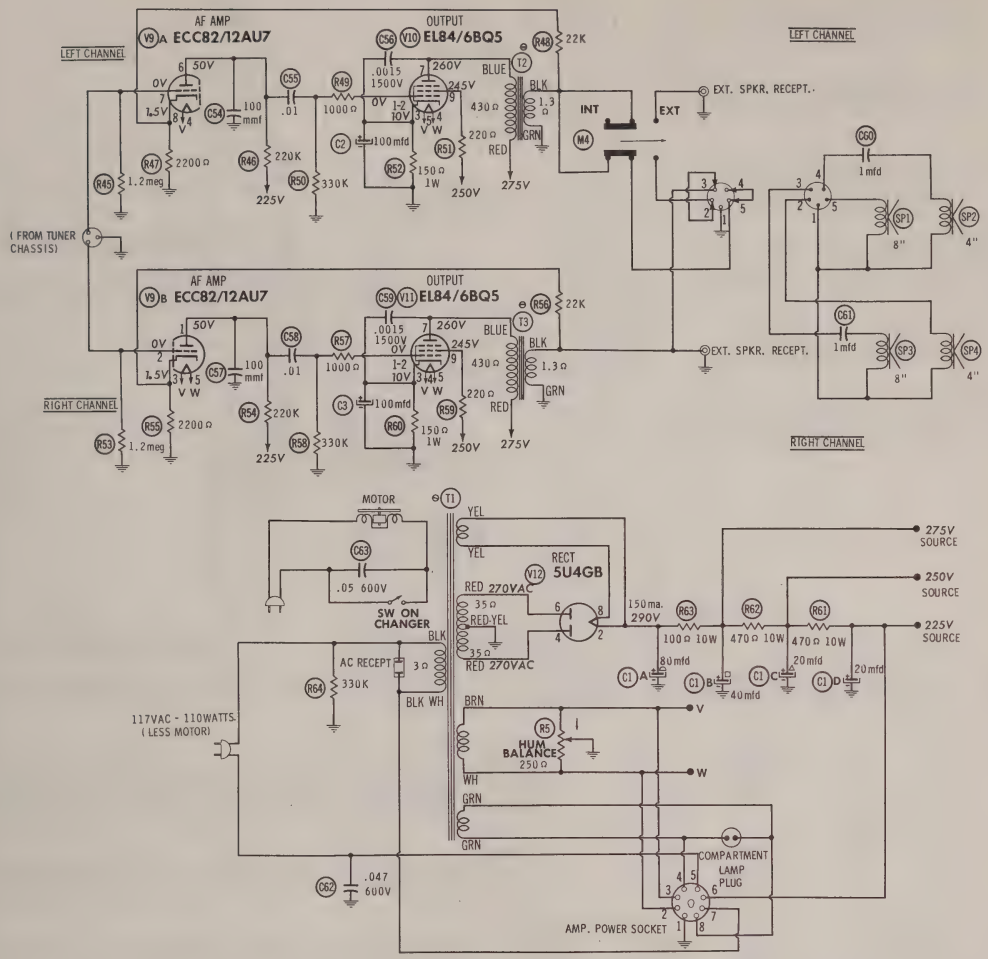
FOLDER 7




AMP CHASSIS-TOP VIEW




AMP CHASSIS-BOTTOM VIEW




RESISTANCE READINGS (Cont.)

| ITEM | TUBE | Pin 1 | Pin 2 | Pin 3 | Pin 4 | Pin 5 | Pin 6 | Pin 7 | Pin 8 | Pin 9 |
|---|---|---|---|---|---|---|---|---|---|---|
| V9 | ECC82 12AU7 | †220K | 0Ω | 2200Ω | FIL | FIL | †220K | 0Ω | 2200Ω | FIL |
| V10 | EL84 6BQ5 | NC | 330K | 150Ω | FIL | FIL | NC | †530Ω | NC | †790Ω |
| V11 | EL84 6BQ5 | NC | 330K | 150Ω | FIL | FIL | NC | †530Ω | NC | †790Ω |
| V12 | 5U4GB | NC | ¶ 50K | NC | 35Ω | NC | 35Ω | NC | ¶ 50K | |

† MEASURED FROM PIN 2 OF V12. NC NO CONNECTION
¶ THIS READING WILL VARY DEPENDING UPON THE CONDITION OF THE ELECTROLYTIC IN THE CIRCUIT.

1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured with 1000 ohm per volt voltmeter.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common ground.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance of component values makes possible a variation of ± 15% in voltage and resistance readings.
6. proper output load connected.

Θ SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

A PHOTOFACT STANDARD NOTATION SCHEMATIC

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HOFFMAN MODELS B8014, M8014, SP8014, W8014 (Ch. 1154, 1155)

# AMP SCHEMATIC

# PARTS LIST AND DESCRIPTIONS

## TUBES

| ITEM No. | USE | TYPE |
|---|---|---|
| V1 | FM RF Amplifier | EF183/6EH7 |
| V2 | FM Mixer | 6AB4 |
| V3 | FM Osc. -FM AFC | 12AT7 |
| V4 | AM Converter | 6BE6 |
| V5 | 1st FM-AM IF Amp. | 6BA6 |
| V6 | 2nd FM IF Amp. -AM Det. | 6AU6 |
| V7 | Ratio Detector | 6AL5 |

| ITEM No. | USE | TYPE |
|---|---|---|
| V8 | Left Channel AF Amp. - Right Channel AF Amp. | ECC83/12AX7 (7025)* |
| V9 | Left Channel AF Amp. - Right Channel AF Amp. | ECC82/12AU7 |
| V10 | Left Channel Output | EL84/6BQ5 |
| V11 | Right Channel Output | EL84/6BQ5 |
| V12 | Rectifier | 5U4GB |

* Alternate

## ELECTROLYTIC CAPACITORS

| ITEM No. | RATING CAP. | RATING VOLT. | REPLACEMENT DATA HOFFMAN PART No. | AEROVOX PART No. | CORNELL-DUBILIER PART No. | GENERAL ELECTRIC PART No. | MALLORY PART No. | PYRAMID PART No. | SPRAGUE PART No. |
|---|---|---|---|---|---|---|---|---|---|
| C1A | ▲80 | 400 | 857105 | AFH4-58-75 | D0927 | XC4-56 | FP420.46 | TMQ-4463 | TVL-4710,2 |
| B | ■40 | 350 | | | | | | | |
| C | ▲20 | 300 | | | | | | | |
| D | 20 | 300 | | | | | | | |
| C2 | 100 | 15 | 856025 | PRS1200 | BBR100-15 | QT1-22 | TC2501 | TD-100-15 | TVA-1160 |
| C3 | 100 | 15 | 856025 | PRS1200 | BBR100-15 | QT1-22 | TC2501 | TD-100-15 | TVA-1160 |
| C4 | 8 | 150 | 856014 | PRS1405 | BBR8-150 | QT1-4 | TC41 | TD-8-150 | TVA-1405 |

## FIXED CAPACITORS

**Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.**

| ITEM No. | RATING | REMARKS | REPLACEMENT DATA AEROVOX PART No. | CENTRALAB PART No. | CORNELL-DUBILIER PART No. | ELMENCO PART No. | MALLORY PART No. | SPRAGUE PART No. |
|---|---|---|---|---|---|---|---|---|
| C5 | 12 N750 5% | | | TCN-12 | C10Q12U | | CN7-412 | 10TCU-Q12 |
| C6 | .001 | | BPD-001 | DD-102 | BYA10D1 | CCD-102 | B-210 | 5HK-D10 |
| C7 | 270 10% | | DI-270 | DD-271 | L10T27 | CCD-271 | GP327 | 10TS-T27 |
| C8 | 270 10% | | DI-270 | DD-271 | L10T27 | CCD-271 | GP327 | 10TS-T27 |
| C9 | .001 | | BPD-001 | DD-102 | BYA10D1 | CCD-102 | B-210 | 5HK-D10 |
| C10 | .001 | | BPD-001 | DD-102 | BYA10D1 | CCD-102 | B-210 | 5HK-D10 |
| C11 | .001 | | BPD-001 | DD-102 | BYA10D1 | CCD-102 | B-210 | 5HK-D10 |
| C12 | 2.2 10% | | NPO-SI 2.2 | TCZ-2R2 | C10V22C | CCTO-2R2 | CNO-522 | 10TCC-V22 |
| C13 | 33 N750 | | N750-DI 33 | DTN-33 | C10Q33U | CCTN-330 | CN7-433 | 10TC U-Q33 |
| C14 | .01 | | BPD-01 | DD-103 | BYA10SI | CCD-103 | B-11 0 | 5HK-SI0 |
| C15 | .01 | | BPD-01 | DD-103 | BYA10SI | CCD-103 | B-11 0 | 5HK-SI0 |
| C16 | 1-8 | #872006 | | 829-7 | | | | |
| C17 | 47 N750 10% | Note 1 | N750-DI 47 | DTN-47 | C10Q47C | CCTN-470 | CN7-447 | 10TCU-Q47 |
| C18 | .01 | | BPD-01 | DD-103 | BYA10SI | CCD-103 | B-11 0 | 5HK-SI0 |
| C19 | 100 | | DI-100 | DD-101 | L10T1 | CCD-101 | GP310 | 10TS-T10 |
| C20 | 12 N750 5% | | | TCN-12 | C10Q12C | | CN7-412 | 10TCU-Q12 |
| C21 | .01 | | BPD-01 | DD-103 | BYA10SI | CCD-103 | B-11 0 | 5HK-SI0 |
| C22 | 100 | | DI-100 | DD-101 | L10T1 | CCD-101 | GP310 | 10TS-T10 |
| C23 | .1 200V | | P288N-1 | DF-104 | CUB2P1 | 2DP-3-104 | GEM-201 | 2TM-P10 |
| C24 | 100 | | DI-100 | DD-101 | L10T1 | CCD-101 | GP310 | 10TS-T10 |
| C25 | .047 | | BPD-05 | DD-503 | CUB6S47 | 6DP-3-473 | GP150 | 5HK-S50 |
| C26 | .01 | | BPD-01 | DD-103 | BYA10SI | CCD-103 | B-11 0 | 5HK-SI0 |
| C27 | .01 | | BPD-01 | DD-103 | BYA10SI | CCD-103 | B-11 0 | 5HK-SI0 |
| C28 | .01 | | BPD-01 | DD-103 | BYA10SI | CCD-103 | B-11 0 | 5HK-SI0 |
| C29 | .01 | | BPD-01 | DD-103 | BYA10SI | CCD-103 | B-11 0 | 5HK-SI0 |
| C30 | 100 | | DI-100 | DD-101 | L10T1 | CCD-101 | GP310 | 10TS-T10 |
| C31 | 4.7 10% | Note 1 | NPO-SI 4.7 | TCZ-4R7 | C10V47C | CCTO-4R7 | C10V47C | 10TCC-V47 |
| C32 | .01 | | BPD-01 | DD-103 | BYA10SI | CCD-103 | B-11 0 | 5HK-SI0 |
| C33 | 270 10% | | DI-270 | DD-271 | L10T27 | CCD-271 | GP327 | 10TS-T27 |
| C34 | 270 10% | | DI-270 | DD-271 | L10T27 | CCD-271 | GP327 | 10TS-T27 |
| C35 | 270 10% | | DI-270 | DD-271 | L10T27 | CCD-271 | GP327 | 10TS-T27 |
| C36 | 680 | | DI-680 | DD-681 | BYA10T68 | CCD-681 | B-368 | 10TS-T68 |
| C37 | .01 | | BPD-01 | DD-103 | BYA10SI | CCD-103 | B-11 0 | 5HK-SI0 |
| C38 | .01 | | BPD-01 | DD-103 | BYA10SI | CCD-103 | B-11 0 | 5HK-SI0 |
| C39 | 220 | | DI-220 | DD-221 | L10T22 | CCD-221 | B-322 | 10TS-T22 |
| C40 | 680 | | DI-680 | DD-681 | BYA10T68 | CCD-681 | B-368 | 10TS-T68 |
| C41 | 470 | | DI-470 | DD-471 | BYA10T47 | CCD-471 | B-347 | 10TS-T47 |
| C42 | 100 | | DI-100 | DD-101 | L10T1 | CCD-101 | GP310 | 10TS-T10 |

## FIXED CAPACITORS (cont)

| ITEM No. | RATING | REMARKS | REPLACEMENT DATA AEROVOX PART No. | CENTRALAB PART No. | CORNELL-DUBILIER PART No. | ELMENCO PART No. | MALLORY PART No. | SPRAGUE PART No. |
|---|---|---|---|---|---|---|---|---|
| C43 | .0047 | | BPD-0047 | DD-472 | BYA10D47M | CCD-472 | B-247 | 5HK-D47 |
| C44 | 220 | | DI-220 | DD-221 | L10T22 | CCD-221 | B-322 | 10TS-T22 |
| C45 | .0033 | | BPD-0033 | DD-332 | BYA10D33 | CCD-332 | B-233 | 5HK-D33 |
| C46 | .01 | | BPD-01 | DD-103 | BYA10SI | CCD-103 | B-11 0 | 5HK-SI0 |
| C47 | 220 | | DI-220 | DD-221 | L10T22 | CCD-221 | B-322 | 10TS-T22 |
| C48 | 680 | | DI-680 | DD-681 | BYA10T68 | CCD-681 | B-368 | 10TS-T68 |
| C49 | 470 | | DI-470 | DD-471 | BYA10T47 | CCD-471 | B-347 | 10TS-T47 |
| C50 | 100 | | DI-100 | DD-101 | L10T1 | CCD-101 | GP310 | 10TS-T10 |
| C51 | .0047 | | BPD-0047 | DD-472 | BYA10D47M | CCD-472 | B-247 | 5HK-D47 |
| C52 | 220 | | DI-220 | DD-221 | L10T22 | CCD-221 | B-322 | 10TS-T22 |
| C53 | .0033 | | BPD-0033 | DD-332 | BYA10D33 | CCD-332 | B-233 | 5HK-D33 |
| C54 | 100 | | DI-100 | DD-101 | L10T1 | CCD-101 | GP310 | 10TS-T10 |
| C55 | .01 | | BPD-01 | DD-103 | BYA10SI | CCD-103 | B-11 0 | 5HK-SI0 |
| C56 | .0015 1500V | | HVD-15-1500 | DD30-152 | HVC16D15 | 16DP-2-152 | 2HV-215 | 30GA-D15 |
| C57 | 100 | | DI-100 | DD-101 | L10T1 | CCD-101 | GP310 | 10TS-T10 |
| C58 | .01 | | BPD-01 | DD-103 | BYA10SI | CCD-103 | B-11 0 | 5HK-SI0 |
| C59 | .0015 1500V | | HVD-15-1500 | DD30-152 | HVC16D15 | 16DP-2-152 | 2HV-215 | 30GA-D15 |
| C60 | 1.0 100V | | P282Z-1.0 | | WFM1W1E | 1DP-5-105 | GEM-21 | |
| C61 | 1.0 100V | | P282Z-1.0 | | WFM1W1E | 1DP-5-105 | GEM-21 | |
| C62 | .047 600V | | P688N-047 | DD-503 | CUB6S47 | 6DP-3-473 | GEM-6147 | 6TM-S47 |
| C63 | .05 600V | | P688N-05 | DD-503 | CUB6S5 | 6DP-3-503 | GEM-615 | 6TM-S50 |

Note 1. Not used in some versions.
\# Hoffman Part Number.

## CONTROLS

| ITEM No. | RATING RESISTANCE | RATING WATTS | REPLACEMENT DATA HOFFMAN PART No. | CENTRALAB PART No. | CLAROSTAT PART No. | CTS-IRC PART No. | MALLORY PART No. | INSTALLATION NOTES |
|---|---|---|---|---|---|---|---|---|
| R1A | 1meg | ½ | 802066 | | | | | Loudness, Right Channel |
| | 450K Tap | | | | | | | |
| B | 1meg | ½ | | | | | | Loudness, Left Channel |
| | 450K Tap | | | | | | | |
| C | Switch | | | | | | | Push-Pull Off-On |
| R2A | 1meg | ½ | 802067 | B-70 | AD47-1meg-Z | | FA16A | Bass, Right Channel |
| B | 1meg | | | SR-70 | Not Req. | | RU16A | Bass, Left Channel |
| C | Shaft | | | Not Req. | FS-3 | | CS3500 | |
| R3A | 1meg | ½ | 802067 | B-70 | AD47-1meg-Z | | FA16A | Treble, Right Channel |
| B | 1meg | | | SR-70 | Not Req. | | RU16A | Treble, Left Channel |
| C | Shaft | | | Not Req. | FS-3 | | CS3500 | |
| R4A | 2meg | ½ | 800096 | B-75 | A47-2meg-S | Q11-139 | U56 | Balance |
| B | Shaft | | | Not Req. | FS-3 | Not Req. | Not Req. | |
| R5A | 250Ω | ½ | 800014 | TT-2 | | B11-201 | R250L | Hum Balance |
| B | Shaft | | | Not Req. | | TM4 | Not Req. | |

## RESISTORS

**All wattages 1/2 watt, or less, unless otherwise listed.**

| ITEM No. | RATING | REPLACEMENT DATA IRC PART No. | WORKMAN TV PART No. | REMARKS |
|---|---|---|---|---|
| R6 | 470K | | | |
| R7 | 47K | | | |
| R8 | 180Ω | | | |
| R9 | 2.2meg | | | |
| R10 | 22Ω | | | |
| R11 | 33K | | | |
| R12 | 47Ω | | | |
| R13 | 22K | | | |
| R14 | 1000Ω | | | |
| R15 | 220Ω | | | |
| R16 | 220K | | | |
| R17 | 2.2meg | | | |
| R18 | 10K | | | |
| R19 | 47K 2W | | | |
| R20 | 470Ω | | | |
| R21 | 22K | | | |

| ITEM No. | RATING | REPLACEMENT DATA IRC PART No. | WORKMAN TV PART No. | REMARKS |
|---|---|---|---|---|
| R22 | 8200Ω 2W | | | |
| R23 | 470K | | | |
| R24 | 2.2meg | | | |
| R25 | 8200Ω 2W | | | |
| R26 | 68Ω | | | |
| R27 | 47K | | | |
| R28 | 68K | | | |
| R29 | 8200Ω 2W | | | |
| R30 | 6800Ω | | | |
| R31 | 6800Ω | | | |
| R32 | 390Ω | | | |
| R33 | 100K | | | |
| R34 | 68K | | | |
| R35 | 220K | | | |
| R36 | 470K | | | |
| R37 | 220K | | | |

# PARTS LIST AND DESCRIPTIONS (Continued)

## RESISTORS (cont)

| ITEM No. | RATING | REPLACEMENT DATA | | | ITEM No. | RATING | REPLACEMENT DATA | | |
|---|---|---|---|---|---|---|---|---|---|
| | | IRC PART No. | WORKMAN TV PART No. | REMARKS | | | IRC PART No. | WORKMAN TV PART No. | REMARKS |
| R38 | 1500Ω | | | | R52 | 150Ω 1W | | | |
| R39 | 33K | | | | R53 | 1.2meg | | | |
| R40 | 220K | | | | R54 | 220K | | | |
| R41 | 470K | | | | R55 | 2200Ω | | | |
| R42 | 220K | | | | R56 | 22K | | | |
| R43 | 1500Ω | | | | R57 | 1000Ω | | | |
| R44 | 33K | | | | R58 | 330K | | | |
| R45 | 1.2meg | | | | R59 | 220Ω | | | |
| R46 | 220K | | | | R60 | 150Ω 1W | | | |
| R47 | 2200Ω | | | | R61 | 470Ω 10W | PW10-470 | 10W-SQ-470 | |
| R48 | 22K | | | | R62 | 470Ω 10W | PW10-470 | 10W-SQ-470 | |
| R49 | 1000Ω | | | | R63 | 100Ω 10W | PW10-100 | 10W-SQ-100 | |
| R50 | 330K | | | | R64 | 330K | | | |
| R51 | 220Ω | | | | | | | | |

## COILS (RF-IF)

| ITEM No. | USE | REPLACEMENT DATA | | | | | NOTES |
|---|---|---|---|---|---|---|---|
| | | HOFFMAN PART No. | Merit PART No. | Miller PART No. | Stancor PART No. | Workman TV PART No. | |
| L1 | FM Ant. | 776003 | | | | | ① IRC Part #CL1 |
| L2 | RF Choke(5.6uh) | 750009 ① | SW-631 | 4609 | RTC-8519 | T859 | |
| L3 | FM RF | 776001 | | | | | |
| L4 | FM Osc. | 768009 | | | | | |
| L5 | 1st FM IF | 760012 | FM-254 | 1463 | RTC-8599 | T633 | |
| L6 | Loopstick | 924002 | BC-418 | 705-A | | T532 | |
| L7 | AM Osc. | 768019 | BC-393 | 69-OSC | RTC-8646 | T512 | |
| L8 | 1st AM IF | 760011 | BC-352 | 12-C1 | RTC-8632 | T607 | |
| L9 | 2nd FM IF | 760013 | FM-254 | 1463 | RTC-8599 | T633 | |
| L10 | 2nd AM IF | 760011 | BC-353 | 12-C2 | RTC-8633 | T608 | |
| L11 | Ratio Detector | 774004 | FM-255 | 1465 | RTC-8600 | T635 | |

## TRANSFORMER (POWER)

| ITEM No. | RATING | | | REPLACEMENT DATA | | | | | NOTES |
|---|---|---|---|---|---|---|---|---|---|
| | PRI. | SEC. 1 | SEC. 2 | HOFFMAN PART No. | Merit PART No. | Stancor PART No. | Thordarson PART No. | Triad PART No. | |
| T1 | 117V @ 1A | 540VCT @ .150A | 5V @ 3A | 716019-3 ① | | | | | ① Alternate Part # 716019 |
| | SEC. 3 | SEC. 4 | SEC. 5 | | | | | | |
| | 6.3V @ 2.1A | 6.3V @ 2.6A | | | | | | | |

## TRANSFORMER (AUDIO OUTPUT)

| ITEM No. | IMPEDANCE | | REPLACEMENT DATA | | | | | NOTES |
|---|---|---|---|---|---|---|---|---|
| | PRI. | SEC. | HOFFMAN PART No. | Merit PART No. | Stancor PART No. | Thordarson PART No. | Triad PART No. | |
| T2 | 5400Ω | 6-8Ω | 724034-1 | A-2902 | A-3849 | 24S07 | S-53X | ① Alternate Part #724034 |
| T3 | 5400Ω | 6-8Ω | 724034-1 | A-2902 | A-3849 | 24S07 | S-53X | |

## SPEAKER

| ITEM No. | TYPE | | | REPLACEMENT DATA | | NOTES |
|---|---|---|---|---|---|---|
| | SIZE | FIELD | V. C. IMP. | HOFFMAN PART No. | QUAM PART No. | |
| SP1 | 8" | PM | 14-16Ω | 708606 | 8A31Z16 | |
| SP2 | 4" | PM | 14-16Ω | 708022 | 4A15Z16 | |
| SP3 | 8" | PM | 14-16Ω | 708606 | 8A31Z16 | |
| SP4 | 4" | PM | 14-16Ω | 708022 | 4A15Z16 | |

## PHONO CARTRIDGE & NEEDLES

*NEEDLE LISTINGS SHOWN ARE FOR RESPECTIVE REPLACEMENT CARTRIDGES ONLY.

| ITEM No. | REPLACEMENT DATA | | | | | | | | NOTES |
|---|---|---|---|---|---|---|---|---|---|
| | HOFFMAN PART No. | | ASTATIC PART No. | | ELECTRO-VOICE PART No. | | SONOTONE PART No. | | |
| | CARTRIDGE | NEEDLE* | CARTRIDGE | NEEDLE* | CARTRIDGE | NEEDLE* | CARTRIDGE | NEEDLE* | |
| M1 | 981025 | 990528 | 13T | Not Req. | 26S | 2604* | 8TA4-S | N-8TA-S * | |
| | | | | | | 2605* | | | |

## MISCELLANEOUS

| ITEM No. | PART NAME | HOFFMAN PART No. | NOTES |
|---|---|---|---|
| M2 | Tuning Cap. | 872013 | 5 Gang, (AM Section 2 Gang Ant. 9-288mmf, Osc. 9-194mmf) |
| M3 | Switch | 902045 | Function Selector, Rotary Type |
| M4 | Switch | 904005 | Speaker Selector (DPDT Slide Type) |

## CABINETS & CABINET PARTS

**(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)**

| NAME | PART NO. | DESCRIPTION |
|---|---|---|
| Glass | 619042 | Dial |
| Knob | 500066 | Tuning |
| Knob | 500067 | Loudness, Bass, Treble, Balance, Function Selector |
| Cabinet | 381057 | Walnut, Model W8014 |
| Cabinet | 381058 | Mahogany, Model M8014 |
| Cabinet | 381059 | Blonde, Model B8014 |
| Cabinet | 381060 | Maple, Model SP8014 |

## WIRING DATA

| | |
|---|---|
| General-use Unshielded Hook-up Wire | Use BELDEN No. 8530 (Solid) Available in Ten Colors<br>8524 (Stranded) Available in Ten Colors |
| Power Cord | Use BELDEN No. 1765-B (6 Ft. Length)<br>1725-K (7½ Ft. Length) |
| Low-Loss Shielded Lead (Interconnecting) | Use BELDEN No. 8401 |
| Phono Pick-up Arm Cable | Use BELDEN No. 8430 (Two Conductor - Twisted) |

PHOTOFACT® Folder

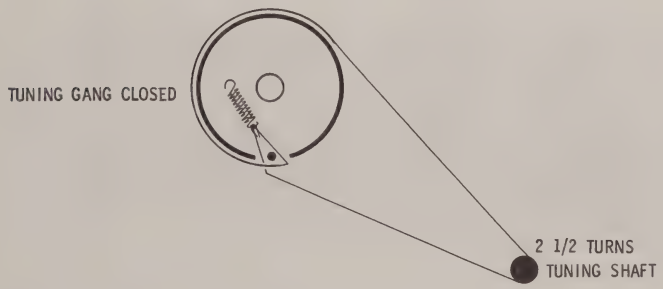
**LEAD**
**MODEL FA-701**

**LEAD**
**MODEL FA-701**

**LEAD**
**MODEL FA-701**

| | | | |
|---|---|---|---|
| TRADE NAME | Lead Model FA-701 | | |
| TYPE SET | AC-DC Operated 7 Tube FM-AM Receiver | | |
| POWER SUPPLY | 110 – 120 Volts AC-DC | RATING | 27 Watts, .26 Amp @ 117 Volts AC |
| TUNING RANGE—BROADCAST | 540 – 1600KC | FREQ. MOD. | 88 – 108MC |

## DRIVE CORD STRINGING




FRONT VIEW

SET 557 FOLDER 8

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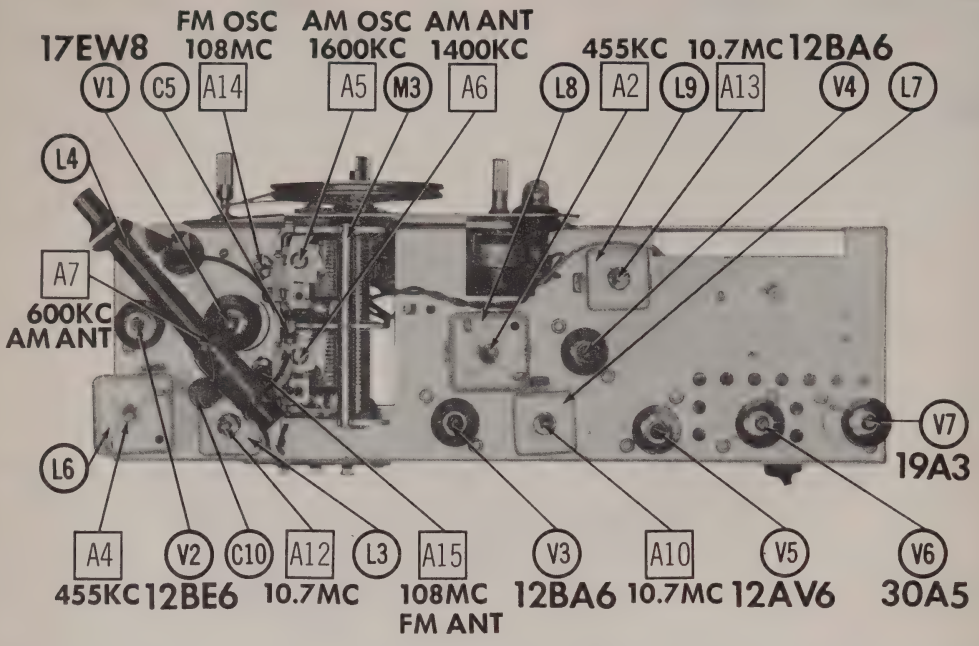
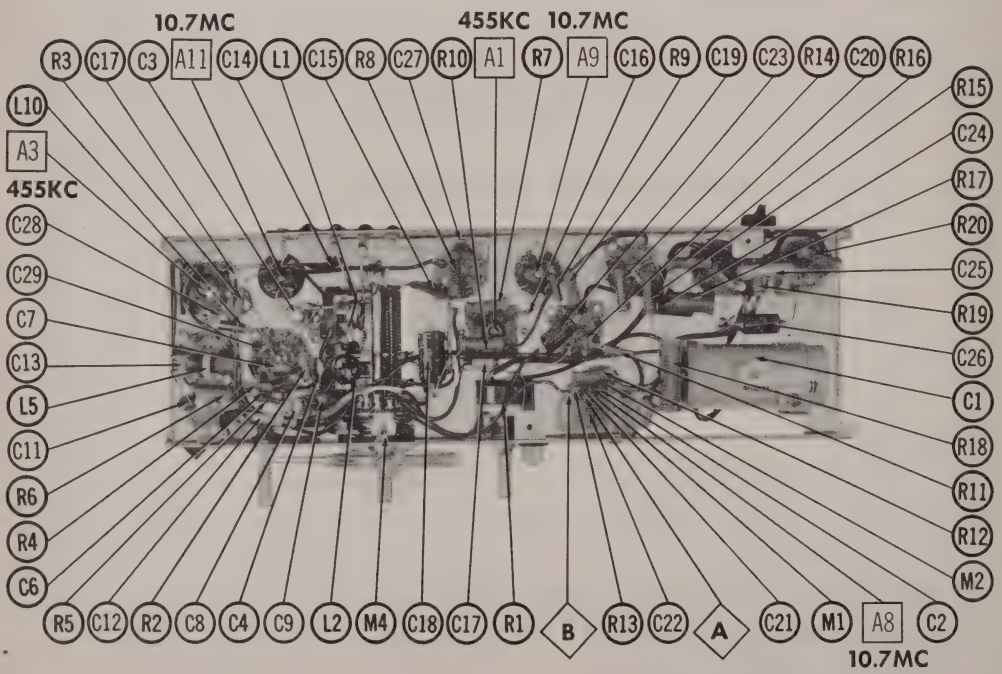
The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed. Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. © 1961 Howard W. Sams & Co., Inc., Indianapolis 6, Indiana. Printed in U.S. of America

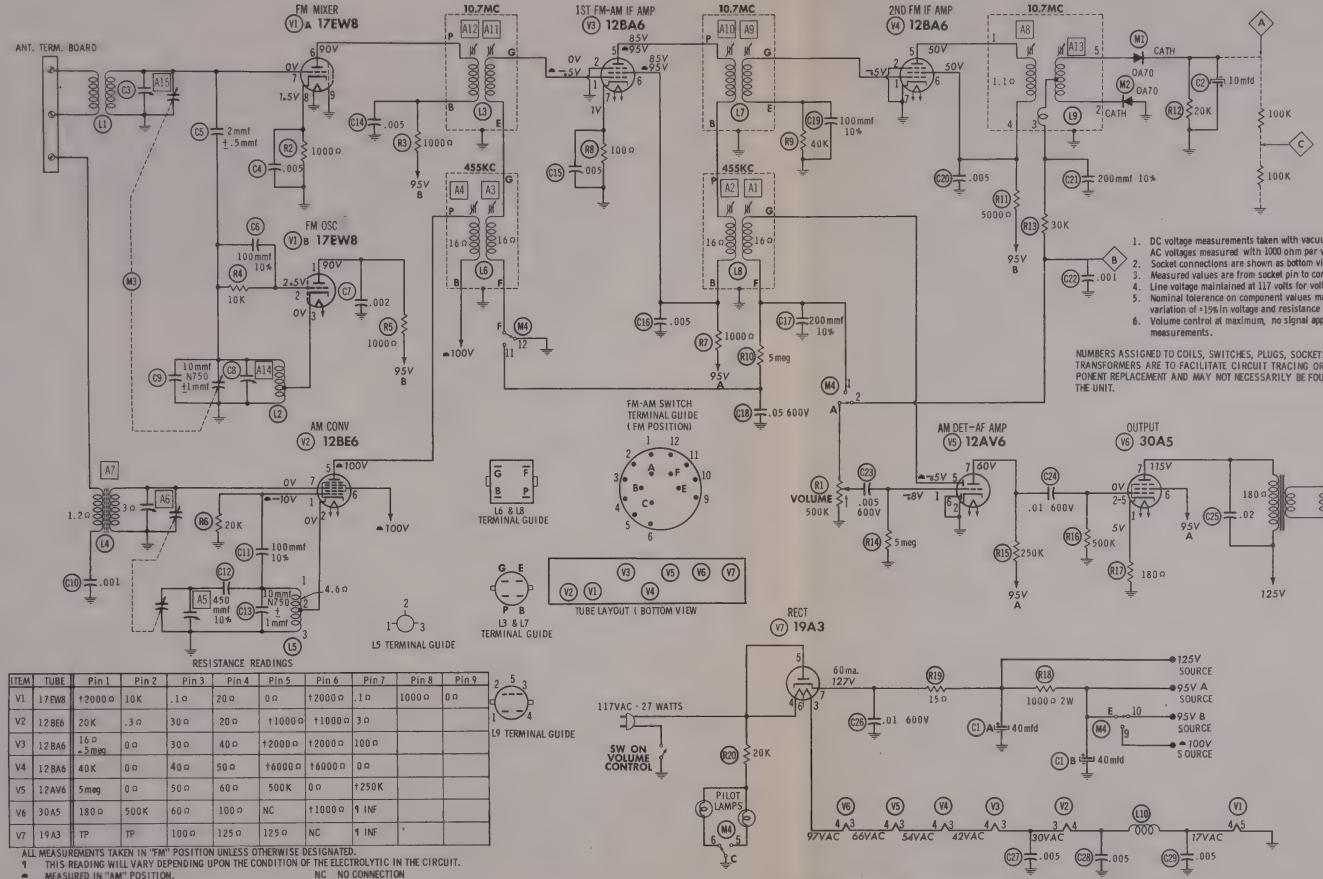
KK783




CHASSIS TOP VIEW




CHASSIS BOTTOM VIEW




1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured with 1000 ohm per volt voltmeter.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common ground.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ±15% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

NUMBERS ASSIGNED TO COILS, SWITCHES, PLUGS, SOCKETS, AND TRANSFORMERS ARE TO FACILITATE CIRCUIT TRACING OR COMPONENT REPLACEMENT AND MAY NOT NECESSARILY BE FOUND ON THE UNIT.

RESISTANCE READINGS

| ITEM | TUBE | Pin 1 | Pin 2 | Pin 3 | Pin 4 | Pin 5 | Pin 6 | Pin 7 | Pin 8 | Pin 9 |
|---|---|---|---|---|---|---|---|---|---|---|
| V1 | 17EW8 | †2000Ω | 10K | .1Ω | 20Ω | 0Ω | †2000Ω | .1Ω | 1000Ω | 0Ω |
| V2 | 12BE6 | 20K | .3Ω | 30Ω | 20Ω | †1000Ω | †1000Ω | 3Ω | | |
| V3 | 12BA6 | 16Ω ▲.5meg | 0Ω | 30Ω | 40Ω | †2000Ω | †2000Ω | 100Ω | | |
| V4 | 12BA6 | 40K | 0Ω | 40Ω | 50Ω | †6000Ω | †6000Ω | 0Ω | | |
| V5 | 12AV6 | 5meg | 0Ω | 50Ω | 60Ω | 500K | 0Ω | †250K | | |
| V6 | 30A5 | 180Ω | 500K | 60Ω | 100Ω | NC | †1000Ω | ¶ INF | | |
| V7 | 19A3 | TP | TP | 100Ω | 125Ω | 125Ω | NC | ¶ INF | | |

ALL MEASUREMENTS TAKEN IN "FM" POSITION UNLESS OTHERWISE DESIGNATED.
¶ THIS READING WILL VARY DEPENDING UPON THE CONDITION OF THE ELECTROLYTIC IN THE CIRCUIT.
▲ MEASURED IN "AM" POSITION. NC NO CONNECTION
† MEASURED FROM PIN 7 OF V7. TP TIE POINT

A PHOTOFACT STANDARD NOTATION SCHEMATIC

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM

ARROWS ON CONTROLS INDICATE CLOCKWISE ROTATION (CONTROL VIEWED FROM SHAFT END)

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**LEAD**
**MODEL FA-701**

# ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Use only enough generator output to provide a usable indication.
Suggested Alignment Tools: A1 thru A4 and A8 thru A15.....GENERAL CEMENT #8721, 8722
WALSCO #2519
A5, A6.....GENERAL CEMENT #5004, 5008, 5009
WALSCO #2520

AM ALIGNMENT — SELECTOR IN AM POSITION

| | SIGNAL GENERATOR COUPLING | SIGNAL GENERATOR FREQUENCY | RADIO DIAL SETTING | OUTPUT METER | ADJUST | REMARKS |
|---|---|---|---|---|---|---|
| 1. | High side thru .01mfd to pin 7 (grid) of AM Converter. Low side to chassis. | 455KC (400~ 30% AM) | (AM) Tuning gang fully open. | Across voice coil. | A1, A2, A3, A4 | Adjust for maximum output. |
| 2. | Fashion loop of several turns of wire and radiate signal into loop of receiver. | 1600KC | 1600KC | " | A5 | " |
| 3. | " | 1400KC | 1400KC Signal. | " | A6 | " |
| 4. | " | 600KC | 600KC | " | A7 | Adjust for maximum output by sliding coil along core. |

FM IF ALIGNMENT USING AM SIGNAL GENERATOR AND VTVM — SELECTOR IN FM POSITION

Connect two matched 100K (± 1%) resistors in series from point Ⓐ to chassis. The junction of these two resistors is alignment point Ⓒ as shown on the schematic.

| | SIGNAL GENERATOR COUPLING | SIGNAL GENERATOR FREQUENCY | RADIO DIAL SETTING | CONNECT VTVM | ADJUST | REMARKS |
|---|---|---|---|---|---|---|
| 5. | High side thru .01mfd to pin 7 (grid) of FM Mixer. Low side to chassis. | 10.7MC (Unmod.) | (FM) Point of non-interference. | DC probe to point Ⓐ. Common to chassis. | A8, A9, A10, A11, A12 | Adjust for maximum deflection. |
| 6. | " | " | " | DC probe to point Ⓑ. Common to point Ⓒ. | A13 | Adjust for zero reading. A positive and negative reading will be obtained on either side of the correct setting. |

FM IF ALIGNMENT USING FM SIGNAL GENERATOR AND OSCILLOSCOPE — SELECTOR IN FM POSITION

Use frequency modulated signal with 60~ modulation and 450KC sweep. Use 120~ sawtooth voltage in scope for horizontal deflection.

| | SIGNAL GENERATOR COUPLING | SIGNAL GENERATOR FREQUENCY | RADIO DIAL SETTING | CONNECT SCOPE | ADJUST | REMARKS |
|---|---|---|---|---|---|---|
| 5. | High side thru .01mfd to pin 7 (grid) of FM Mixer. Low side to chassis. | 10.7MC (450KC Swp) | (FM) Point of non-interference. | Vert. amp. to point Ⓐ. Low side to chassis. | A8, A9, A10, A11, A12 | Disconnect stabilizing capacitor C2. Adjust for maximum gain and symmetry of response similar to Fig. 1 with markers as shown. Reconnect C2. |
| 6. | " | " | " | Vert. amp. to point Ⓑ. Low side to chassis. | A13 | Adjust to place marker at the center of crossover lines similar to Fig. 2. SLIGHTLY retouch A8 for maximum amplitude and straightness of crossover lines. |

FM RF ALIGNMENT — SELECTOR IN FM POSITION

| | SIGNAL GENERATOR COUPLING | SIGNAL GENERATOR FREQUENCY | RADIO DIAL SETTING | CONNECT VTVM | ADJUST | REMARKS |
|---|---|---|---|---|---|---|
| 7. | Across FM antenna terminals with 120Ω in each lead. | 108MC (Unmod.) | (FM) 108MC | DC probe to point Ⓐ. Common to chassis. | A14, A15 | Adjust for maximum deflection. |
| 8. | " | 88MC | 88MC | " | L2, L1 | Adjust for maximum deflection by expanding or compressing coil turns. |

FIG. 1

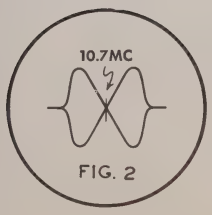

FIG. 2

# PARTS LIST AND DESCRIPTIONS

## WIRING DATA

General-use Unshielded Hook-up Wire ..... Use BELDEN No. 8530 (Solid) Available in Ten Colors
8524 (Stranded) Available in Ten Colors

Power Cord ..... Use BELDEN No. 1765-B (6 Ft. Length)
1725-K (7½ Ft. Length)

## TUBES

◆ GENERAL ELECTRIC ◆ RAYTHEON ◆ SYLVANIA ◆

| ITEM No. | USE | TYPE |
|---|---|---|
| V1 | FM Mixer-FM Osc. | 17EW8 |
| V2 | AM Converter | 12BE6 |
| V3 | 1st FM-AM IF Amp. | 12BA6 |
| V4 | 2nd FM IF Amplifier | 12BA6 |
| V5 | AM Det. -AF Amplifier | 12AV6 |
| V6 | Output | 30A5 |
| V7 | Rectifier | 19A3 |

## ELECTROLYTIC CAPACITORS

| ITEM No. | RATING | | REPLACEMENT DATA | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | CAP. | VOLT. | LEAD PART No. | AEROVOX PART No. | CORNELL-DUBILIER PART No. | GENERAL ELECTRIC PART No. | MALLORY PART No. | PYRAMID PART No. | SPRAGUE PART No. |
| C1A | 40 | 150 | | PRS2195 | BBRD4415 | QT2-9 | TCD48 | TDLD-7 | TVA-2445 |
| B | 40 | 150 | | | | | | | |
| C2 | 10 | 25 | | PRS1250 | BBR10-25 | QT1-5 | TC22 | TD-10-25 | TVA-1204 |

## FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

| ITEM No. | RATING | REMARKS | REPLACEMENT DATA | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | AEROVOX PART No. | CENTRALAB PART No. | CORNELL-DUBILIER PART No. | ELMENCO PART No. | MALLORY PART No. | SPRAGUE PART No. |
| C3 | | | | | | | | |
| C4 | .005 | | BPD-005 | DD-502 | BYA10D5 | CCD-502 | B-250 | 5HK-D50 |
| C5 | 2 +.5mmf | | NPO-SI 2.0 | TCZ-2R2 | C10V2C | CCTO-2R2 | CNO-522 | 10TCC-V22 |
| C6 | 100 10% | | NPO-SI 100 | D6-101 | L10T1 | CCD-101 | GP310 | 10TS-T10 |
| C7 | .002 | | BPD-002 | DD-202 | BYA10D2 | CCD-202 | B-220 | 5HK-D20 |
| C8 | | | | | | | | |
| C9 | 10 N750 ± 1mmf | | N750-DI 10 | TCN-10 | C10Q1U | CCTN-100 | CN7-410 | 10TCU-Q10 |
| C10 | .001 | | BPD-001 | DD-102 | BYA10D1 | CCD-102 | B-210 | 5HK-D10 |
| C11 | 100 10% | | 1469-0001 | TCZ-100 | 22R5T1 | CM-19B-101K | MCB235 | MS-31 |
| C12 | 450 10% | | 1469-00047 | D6-471 | 5R5T47 | CCD-471 | GP347 | 10TS-T47 |
| C13 | 10 N750 ± 1mmf | | N750-DI 10 | TCN-10 | C10Q1U | CCTN-100 | CN7-410 | 10TCU-Q10 |
| C14 | .005 | | BPD-005 | DD-502 | BYA10D5 | CCD-502 | B-250 | 5HK-D50 |
| C15 | .005 | | BPD-005 | DD-502 | BYA10D5 | CCD-502 | B-250 | 5HK-D50 |
| C16 | .005 | | BPD-005 | DD-502 | BYA10D5 | CCD-502 | B-250 | 5HK-D50 |
| C17 | 200 10% | | NPO-SI 220 | D6-201 | L10T2 | CCD-320 | GP320 | 10TS-T20 |
| C18 | .05 600V | | P688N-05 | DD-503 | CUB6S5 | 6DP-3-503 | GEM-615 | 6TM-S50 |
| C19 | 100 10% | | 1469-0001 | TCZ-100 | L10T1 | CM-19B-101K | MCB235 | MS-31 |
| C20 | .005 | | BPD-005 | DD-502 | BYA10D5 | CCD-502 | B-250 | 5HK-D50 |
| C21 | 200 10% | | NPO-SI 220 | D6-221 | L10T2 | CCD-201 | GP320 | 10TS-T20 |
| C22 | .001 | | BPD-001 | DD-102 | BYA10D1 | CCD-102 | B-210 | 5HK-D10 |
| C23 | .005 600V | | P688N-005 | D6-502 | CUB6D5 | 6DP-1-502 | GEM-625 | 6TM-D50 |
| C24 | .01 600V | | P688N-01 | D6-103 | CUB6S1 | 6DP-2-103 | GEM-611 | 6TM-S10 |
| C25 | .02 400V | | P488N-02 | DD-203 | CUB4S2 | 4DP-2-203 | GEM-412 | 4TM-S20 |
| C26 | .01 600V | | P688N-01 | D6-103 | CUB6S1 | 6DP-2-103 | GEM-611 | 6TM-D10 |
| C27 | .005 | | BPD-005 | DD-502 | BYA10D5 | CCD-502 | B-250 | 5HK-D50 |
| C28 | .005 | | BPD-005 | DD-502 | BYA10D5 | CCD-502 | B-250 | 5HK-D50 |
| C29 | .005 | | BPD-005 | DD-502 | BYA10D5 | CCD-502 | B-250 | 5HK-D50 |

## CONTROLS

| ITEM No. | RATING | | REPLACEMENT DATA | | | | | INSTALLATION NOTES |
|---|---|---|---|---|---|---|---|---|
| | RESISTANCE | WATTS | LEAD PART No. | CENTRALAB PART No. | CLAROSTAT PART No. | CTS-IRC PART No. | MALLORY PART No. | |
| R1A | 500K | ½ | | AB-60 | | | | Volume |
| B | Shaft | | | AK-29 | | | | |
| C | Switch | | | KR-1 | | | | Power Off-On |

## RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

| ITEM No. | RATING | REPLACEMENT DATA | | | ITEM No. | RATING | REPLACEMENT DATA | | |
|---|---|---|---|---|---|---|---|---|---|
| | | IRC PART No. | WORKMAN TV PART No. | REMARKS | | | IRC PART No. | WORKMAN TV PART No. | REMARKS |
| R2 | 1000Ω | | | | R12 | 20K | | | |
| R3 | 1000Ω | | | | R13 | 30K | | | |
| R4 | 10K | | | | R14 | 5meg | | | |
| R5 | 1000Ω | | | | R15 | 250K | | | |
| R6 | 20K | | | | R16 | 500K | | | |
| R7 | 1000Ω | | | | R17 | 180Ω | | | |
| R8 | 100Ω | | | | R18 | 1000Ω 2W | | | |
| R9 | 40K | | | | R19 | 15Ω | | | |
| R10 | 5meg | | | | R20 | 20K | | | |
| R11 | 5000Ω | | | | | | | | |

## COILS (RF-IF)

| ITEM No. | USE | REPLACEMENT DATA | | | | | NOTES |
|---|---|---|---|---|---|---|---|
| | | LEAD PART No. | Merit PART No. | Miller PART No. | Stancor PART No. | Workman TV PART No. | |
| L1 | FM Ant. | | | | | | |
| L2 | FM Osc. | | | | | | |
| L3 | 1st FM IF | | | | | | |
| L4 | Loopstick | | | | | | |
| L5 | AM Osc. | | | | | | |
| L6 | 1st AM IF | | | | | | |
| L7 | 2nd FM IF | | | | | | |
| L8 | 2nd AM IF | | | | | | |
| L9 | Ratio Detector | | | | | | |
| L10 | Fil. Choke | | | | | | |

## TRANSFORMER (AUDIO OUTPUT)

| ITEM No. | IMPEDANCE | | REPLACEMENT DATA | | | | | NOTES |
|---|---|---|---|---|---|---|---|---|
| | PRI. | SEC. | LEAD PART No. | Merit PART No. | Stancor PART No. | Thordarson PART No. | Triad PART No. | |
| T1 | 2600Ω | 3-4Ω | | A-2928 | A-3876 | 22S46 | S-1X | |

## SPEAKER

| ITEM No. | TYPE | | | REPLACEMENT DATA | | NOTES |
|---|---|---|---|---|---|---|
| | SIZE | FIELD | V. C. IMP. | LEAD PART No. | QUAM PART No. | |
| SP1 | 4" | PM | 3-4Ω | P-412RA | 4A1 | |

## SIGNAL DIODES

| ITEM No. | ORIG. TYPE | REPLACEMENT DATA | | | NOTES |
|---|---|---|---|---|---|
| | | LEAD PART No. | GENERAL ELECTRIC PART No. | RAYTHEON PART No. | |
| M1 | OA70 | | | 1N60 | Ratio Detector |
| M2 | OA70 | | | 1N60 | |

## MISCELLANEOUS

| ITEM No. | PART NAME | LEAD PART No. | NOTES |
|---|---|---|---|
| M3 | Tuning Cap. | | 4 Gang |
| M4 | Switch | | Function Selector (Rotary Type) |

PHOTOFACT® Folder

# PHILCO MODELS J-1627X, J-1630, J-1631, K-1632

PHILCO MODELS J-1627X, J-1630, J-1631, K-1632

MODEL J-1631

PHILCO MODELS J-1627X, J-1630, J-1631, K-1632

| | |
|---|---|
| TRADE NAME | Philco Models J-1627X, J-1630, J-1631, K-1632 |
| MANUFACTURER | Philco Corp., Tioga & C Streets, Philadelphia, Pa. |
| TYPE SET | AC Operated 5 Tube Stereo Phono Amplifier With 4 Speed Automatic Record Changer (Model J-1631 Has tuner RT-300, Models J-1627X and J-1630 may use tuner RT-300 or RT-400) |
| POWER SUPPLY | 105 — 120 Volts AC, 60 Cycles RATING 51 Watts, .48 Amp. @ 117 Volts AC(Amp only, Less Motor) |

FOR SERVICE INFORMATION ON RT-300 TUNER — SEE PHOTOFACT SET 510 FOLDER 15

FOR SERVICE INFORMATION ON RT-400 TUNER — SEE PHOTOFACT SET 519 FOLDER 10

FOR SERVICE INFORMATION ON RECORD CHANGER M-46 USED IN MODELS J-1627X and K-1632 — SEE SIMILAR V-M 1201 — PHOTOFACT SET 436 FOLDER 18 OR RECORD CHANGER MANUAL RC-12

FOR SERVICE INFORMATION ON RECORD CHANGER M-47 USED IN MODELS J-1630 and J-1631 — SEE SIMILAR GLASER-STEERS GS-77 (REVISED) — PHOTOFACT SET 482 FOLDER 11

SET 557 FOLDER 9

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KN776

# PARTS LIST AND DESCRIPTIONS

## TUBES

| • GENERAL ELECTRIC • | | | • RAYTHEON • SYLVANIA • | | |
|---|---|---|---|---|---|
| ITEM No. | USE | TYPE | ITEM No. | USE | TYPE |
| V1 | Left Channel AF Amp. | 12AU7A | V4 | Right Channel Output | 6AQ5 |
| V2 | Left Channel Output | 6AQ5 | V5 | Rectifier | 6BW4 |
| V3 | Right Channel AF Amp. | 6AU6 | | | |

## ELECTROLYTIC CAPACITORS

| ITEM No. | RATING CAP. | RATING VOLT. | REPLACEMENT DATA PHILCO PART No. | AEROVOX PART No. | CORNELL-DUBILIER PART No. | GENERAL ELECTRIC PART No. | MALLORY PART No. | PYRAMID PART No. | SPRAGUE PART No. |
|---|---|---|---|---|---|---|---|---|---|
| C1A | ▲40 | 400 | 30-2601-10 | AFH4-13 | C1060 | XC4-21 | FP343.6 | TMT-3622 | TVL-3743.7 |
| B | ■20 | 400 | | PRS2370 | BR1045 | | TC72 | TD-10-450 | TVA-1705 |
| C | ▲10 | 400 | | | | | | | |
| D | 10 | 25 | | | | | | | |

## FIXED CAPACITORS

**Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.**

| ITEM No. | RATING | REMARKS | REPLACEMENT DATA AEROVOX PART No. | CENTRALAB PART No. | CORNELL-DUBILIER PART No. | ELMENCO PART No. | MALLORY PART No. | SPRAGUE PART No. |
|---|---|---|---|---|---|---|---|---|
| C2 | .0015 400V | | P488N-0015 | D6-152 | CUB6D15 | 6DP-1-152 | GEM-6215 | 6TM-D15 |
| C3 | 47 | | SI 47 | D6-470 | L10Q47 | CCD-470 | GP447 | 10TS-Q47 |
| C4 | .01 | | BPD-01 | DD-103 | BYA10S1 | CCD-103 | B-110 | 5HK-S10 |
| C5 | .01 400V | | P488N-01 | D6-103 | CUB4S1 | 4DP-1-103 | GEM-411 | 4TM-S10 |
| C6 | .047 600V | | P688N-047 | DD-503 | CUB4S47 | 6DP-3-473 | GEM-6147 | 6TM-S47 |
| C7 | .0022 600V | | P688N-0022 | D6-222 | CUB6D22 | 6LP-1-222 | GEM-6222 | 6TM-D22 |
| C8 | .0015 400V | | P488N-0015 | D6-152 | CUB6D15 | 6LP-1-222 | GEM-6215 | 6TM-D15 |
| C9 | 47 | | SI 47 | D6-470 | L10Q47 | CCD-470 | GP447 | 10TS-Q47 |
| C10 | .0033 400V | | P488N-0033 | D6-332 | CUB6D33 | 6DP-1-332 | GEM-6233 | 6TM-D33 |
| C11 | .047 600V | | P688N-047 | DD-503 | CUB6S47 | 6DP-3-473 | GEM-6147 | 6TM-S47 |
| C12 | .0022 600V | | P688N-0022 | D6-222 | CUB6D22 | 6DP-1-222 | GEM-6222 | 6TM-D22 |
| C13 | .068 600V | | P688N-068 | | CUB6S68 | 6DP-4-683 | GEM-6168 | 6TM-S68 |

## CONTROLS

| ITEM No. | RATING RESISTANCE | RATING WATTS | REPLACEMENT DATA PHILCO PART No. | CENTRALAB PART No. | CLAROSTAT PART No. | CTS-IRC PART No. | MALLORY PART No. | INSTALLATION NOTES |
|---|---|---|---|---|---|---|---|---|
| R1A | 2meg | | 33-5603-1① | BT-82 | | | | Loudness, Left Channel |
| | 1.2meg Tap | | | | | | | |
| B | 2meg | | | STR-82 | | | | Loudness, Right Channel |
| | 1.2meg Tap | | | | | | | |
| R2A | 4meg | | 33-5603-3② | | | | | Bass, Left Channel |
| B | 4meg | | | | | | | Bass, Right Channel |
| R3A | 500K | | 33-5603-2③ | B-60 | AD47-500K-A | | FA55A | Treble, Left Channel |
| B | 500K | | | SR-60 | Not Req. | | RU55A | Treble, Right Channel |
| C | Shaft | | | Not Req. | FS-3 | | CS3500 | |
| R4A | 4meg | | 33-5587-38④ | B-86 | A47-4meg-S | B11-240 | U67 | Balance |
| B | Shaft | | | Not Req. | FS-3 | SK1 | Not Req. | |

① Models 1627X, J-1630 use Part #33-5573-61. Model K-1632 uses Part #33-5603-8.
② Models J-1627X, J-1630 use Part #33-5573-56.
③ Models J-1627X, J-1630 use Part #33-5573-50.
④ Models J-1627X, J-1630 use Part #33-5587-37. Model K-1632 uses Part #33-5587-39.

## RESISTORS

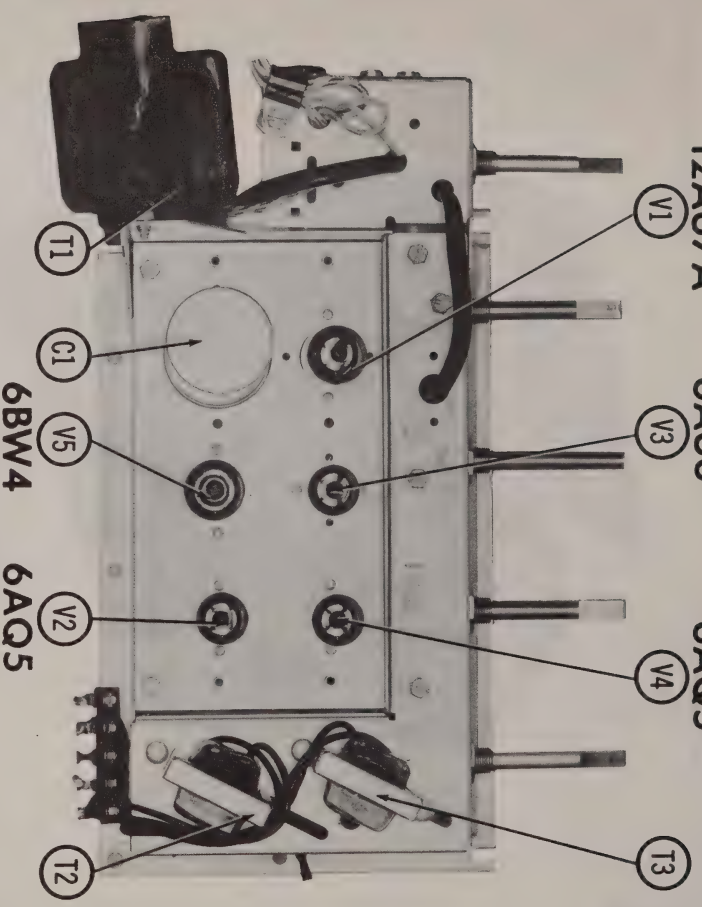
**All wattages 1/2 watt, or less, unless otherwise listed.**

| ITEM No. | RATING | REPLACEMENT DATA IRC PART No. | WORKMAN TV PART No. | REMARKS |
|---|---|---|---|---|
| R5 | 47K | | | |
| R6 | 33K | | | |
| R7 | 100K | | | |
| R8 | 1200Ω | | | (2200Ω) * |
| R9 | 470K | | | |
| R10 | 100K | | | |
| R11 | 3300Ω | | | |
| R12 | 470K | | | |

| ITEM No. | RATING | REPLACEMENT DATA IRC PART No. | WORKMAN TV PART No. | REMARKS |
|---|---|---|---|---|
| R13 | 120Ω 2W | | | |
| R14 | 47K | | | |
| R15 | 33K | | | |
| R16 | 100K | | | |
| R17 | 470Ω | | | |
| R18 | 470K | | | |
| R19 | 270K | | | |
| R20 | 4700Ω 2W | | | |

* Used in Model K-1632

# CHASSIS—TOP VIEW



# PARTS LIST AND DESCRIPTIONS (Continued)

## TRANSFORMER (POWER)

| ITEM No. | RATING | | | REPLACEMENT DATA | | | | | NOTES |
|---|---|---|---|---|---|---|---|---|---|
| | PRI. | SEC. 1 | SEC. 2 | PHILCO PART No. | Merit PART No. | Stancor PART No. | Thordarson PART No. | Triad PART No. | |
| T1 | 117V ⓖ .48A | 480VCT ⓖ .100A DC | 6.3VCT ⓖ 2.4A | 32-8887-2 ① | | | | | ① Alternate Part # 32-8887-3 |

## TRANSFORMER (AUDIO OUTPUT)

| ITEM No. | IMPEDANCE | | REPLACEMENT DATA | | | | | NOTES |
|---|---|---|---|---|---|---|---|---|
| | PRI. | SEC. | PHILCO PART No. | Merit PART No. | Stancor PART No. | Thordarson PART No. | Triad PART No. | |
| T2 | 3800Ω | 7-8Ω | 32-8958-2 | A-2902 | A-3849 | 22S87 | S-63X | ① Model K-1632 uses Part # 32-8963-2 |
| T3 | 3800Ω | 7-8Ω | 32-8958-2 | A-2902 | A-3849 | 22S87 | S-63X | |
| T4 | 1500Ω CT | 12-16Ω | 32-8963-1 ① | | | | | |

## SPEAKER

| ITEM No. | TYPE | | | REPLACEMENT DATA | | NOTES |
|---|---|---|---|---|---|---|
| | SIZE | FIELD | V. C. IMP. | PHILCO PART No. | QUAM PART No. | |
| SP1 | 5 1/4" | PM | 14-16Ω | 36-1669-21♦ | 52A1Z16 | ♦ Used in Models J-1627X, J-1630, J-1631 |
| SP2 | 4" | PM | 14-16Ω | 36-1673-11* | 4A15Z16 | * Optional external speaker for Models J-1627X, J-1630, J-1631 |
| SP3 | 8" | PM | 6-8Ω | 36-1651-30 ♦ | 8A21PA | † Used in Model K-1632 |
| SP4 | 8" | PM | 6-8Ω | 36-1651-30 ♦ | 8A21PA | |
| SP5 | 5 1/4" | PM | 14-16Ω | 36-1669-21♦ | 52A1Z16 | |
| SP6 | 4" | PM | 14-16Ω | 36-1673-11* | 4A15Z16 | |
| | 4" | PM | 6-8Ω | 36-1673-19 † | 4A07Z8 | |
| | 6" | PM | 6-8Ω | 36-1680-10 † | | |

## PHONO CARTRIDGE & NEEDLES

*NEEDLE LISTINGS SHOWN ARE FOR RESPECTIVE REPLACEMENT CARTRIDGES ONLY.

| ITEM No. | REPLACEMENT DATA | | | | | | | | NOTES |
|---|---|---|---|---|---|---|---|---|---|
| | PHILCO PART No. | | ASTATIC PART No. | | ELECTRO-VOICE PART No. | | SONOTONE PART No. | | |
| | CARTRIDGE | NEEDLE* | CARTRIDGE | NEEDLE* | CARTRIDGE | NEEDLE* | CARTRIDGE | NEEDLE* | |
| M1 | | | 17 | Not Req. | 26S | 2604 * 2605 * | 8TA4-S | N-8TA-S * | |

## MISCELLANEOUS

| ITEM No. | PART NAME | PHILCO PART No. | NOTES |
|---|---|---|---|
| M2 | Switch | 42-2118-2 | Function Selector (rotary wafer type) Model J-1631 (Used only in Models J-1627X and J-1630 equipped with FM-AM Tuner) |
| | 45 RPM Spindle | 76-10205-2 | Models J-1627X, K-1632 |
| | 45 RPM Spindle | 76-11842 | Models J-1630, J-1631 |

## CABINETS & CABINET PARTS

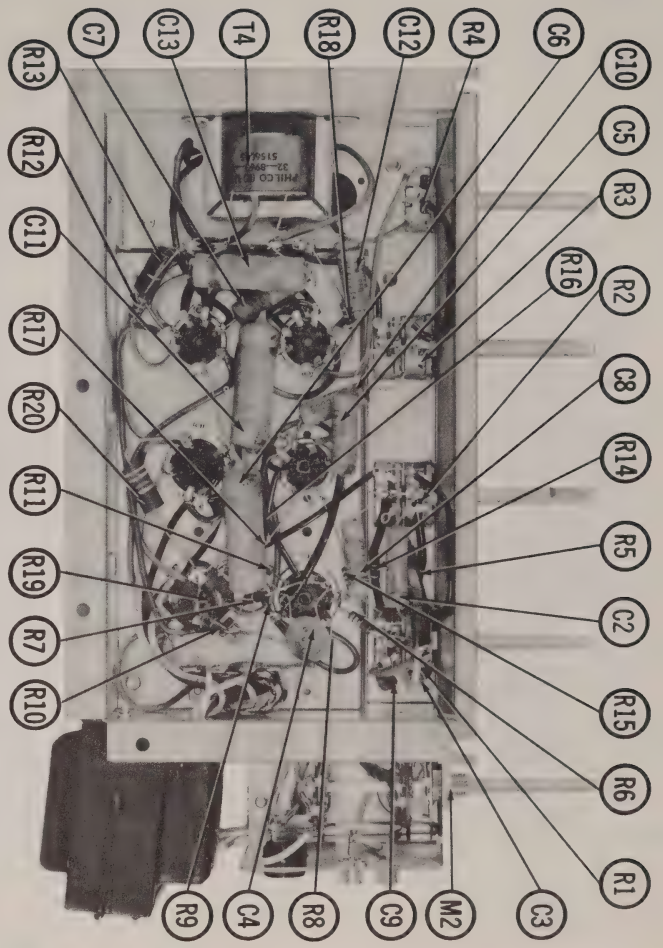
**(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)**

| NAME | PART NO. | DESCRIPTION |
|---|---|---|
| Knob | 424-8177 | 4 Used, Model J-1627X |
| Knob | 28-11588-4 | 4 Used, Model J-1630 |
| Knob | 28-11588-4 | 5 Used, Model J-1631 |
| Knob | 424-8194 | 4 Used, Model K-1632 |
| Cabinet Leg | 424-0022-63 | Mahogany, Model K-1632 |
| Cabinet Leg | 424-0022-64 | Provincial, Model K-1632 |
| Door Pull | 28-11263 | Model K-1632 |

## WIRING DATA

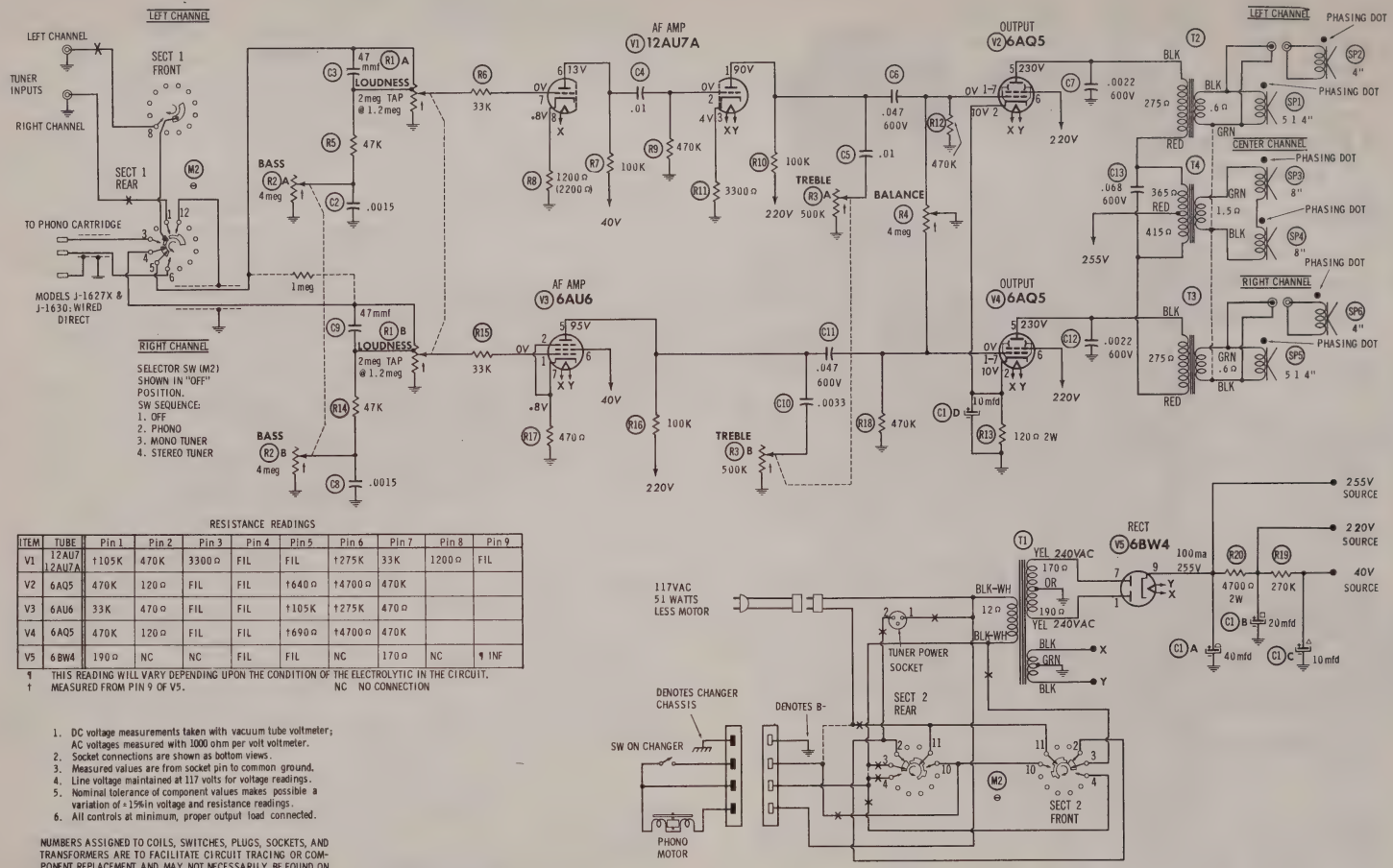
| | | |
|---|---|---|
| General-use Unshielded Hook-up Wire | Use BELDEN No. | 8530 (Solid) Available in Ten Colors<br>8524 (Stranded) Available in Ten Colors |
| Power Cord | Use BELDEN No. | 1765-B (6 Ft. Length)<br>1725-K (7½ Ft. Length) |
| Low-Loss Shielded Lead (Interconnecting) | Use BELDEN No. | 8401 |
| Phono Pick-up Arm Cable | Use BELDEN No. | 8430 (Two Conductor - Twisted) |

## CHASSIS—BOTTOM VIEW




PHILCO MODELS J-1627X, J-1630, J-1631, K-1632

FOLDER 9




RESISTANCE READINGS

| ITEM | TUBE | Pin 1 | Pin 2 | Pin 3 | Pin 4 | Pin 5 | Pin 6 | Pin 7 | Pin 8 | Pin 9 |
|---|---|---|---|---|---|---|---|---|---|---|
| V1 | 12AU7 12AU7A | †105K | 470K | 3300Ω | FIL | FIL | †275K | 33K | 1200Ω | FIL |
| V2 | 6AQ5 | 470K | 120Ω | FIL | FIL | †640Ω | †4700Ω | 470K | | |
| V3 | 6AU6 | 33K | 470Ω | FIL | FIL | †105K | †275K | 470Ω | | |
| V4 | 6AQ5 | 470K | 120Ω | FIL | FIL | †690Ω | †4700Ω | 470K | | |
| V5 | 6BW4 | 190Ω | NC | NC | FIL | FIL | NC | 170Ω | NC | ¶ INF |

¶ THIS READING WILL VARY DEPENDING UPON THE CONDITION OF THE ELECTROLYTIC IN THE CIRCUIT.
† MEASURED FROM PIN 9 OF V5. NC NO CONNECTION

1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured with 1000 ohm per volt voltmeter.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common ground.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance of component values makes possible a variation of ±15% in voltage and resistance readings.
6. All controls at minimum, proper output load connected.

NUMBERS ASSIGNED TO COILS, SWITCHES, PLUGS, SOCKETS, AND TRANSFORMERS ARE TO FACILITATE CIRCUIT TRACING OR COMPONENT REPLACEMENT AND MAY NOT NECESSARILY BE FOUND ON THE UNIT.

A PHOTOFACT STANDARD NOTATION SCHEMATIC

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⊖ SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM

ARROWS ON CONTROLS INDICATE CLOCKWISE ROTATION (CONTROL VIEWED FROM SHAFT END)

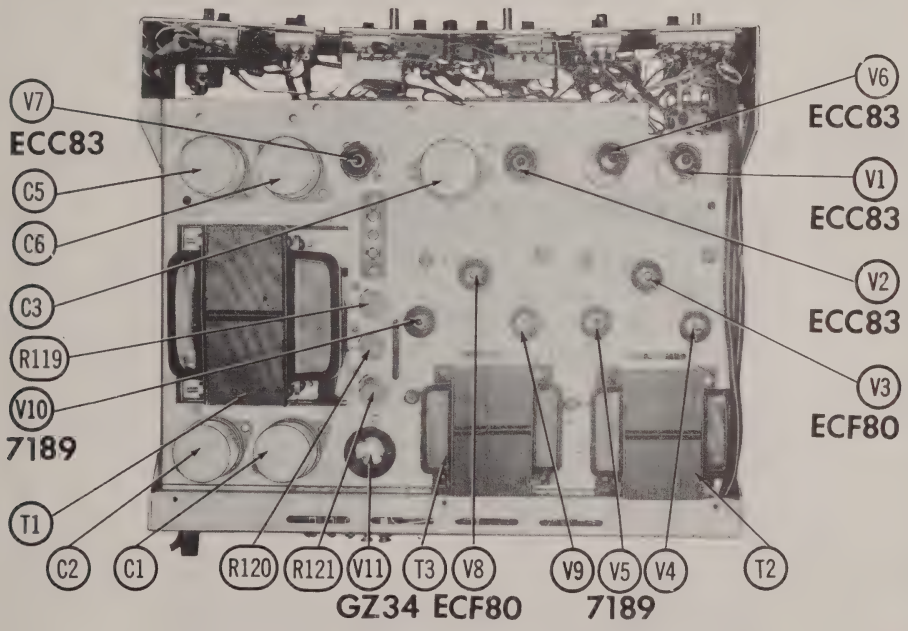
**PHILCO MODELS J-1627X, J-1630, J-1631, K-1632**

PHOTOFACT® Folder

**H. H. SCOTT
MODEL 299B**

H. H. SCOTT
MODEL 299B

| | |
|---|---|
| TRADE NAME | H. H. Scott Model 299B |
| MANUFACTURER | H. H. Scott, Inc., 111 Powder Mill Road, Maynard, Mass. |
| TYPE SET | AC Operated 11 Tube Stereo Amplifier |
| POWER SUPPLY | 105 — 125 Volts AC, 50-60 Cycles RATING 110 Watts, 1.1 Amp. @117 Volts AC |




H. H. SCOTT
MODEL 299B

**HOWARD W. SAMS & CO., INC.** Indianapolis 6, Indiana

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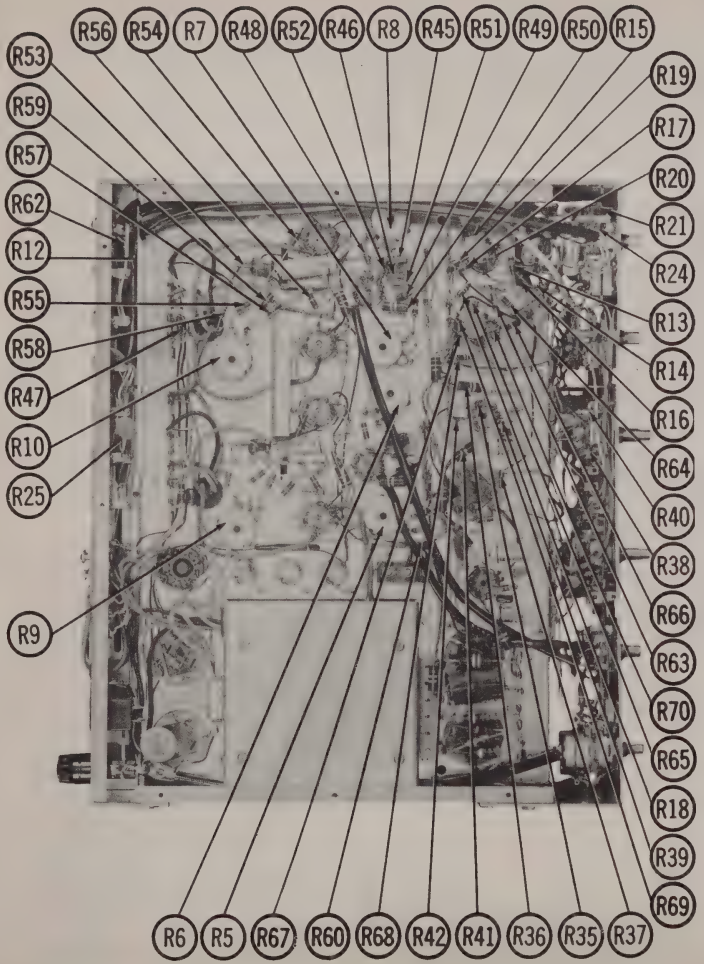
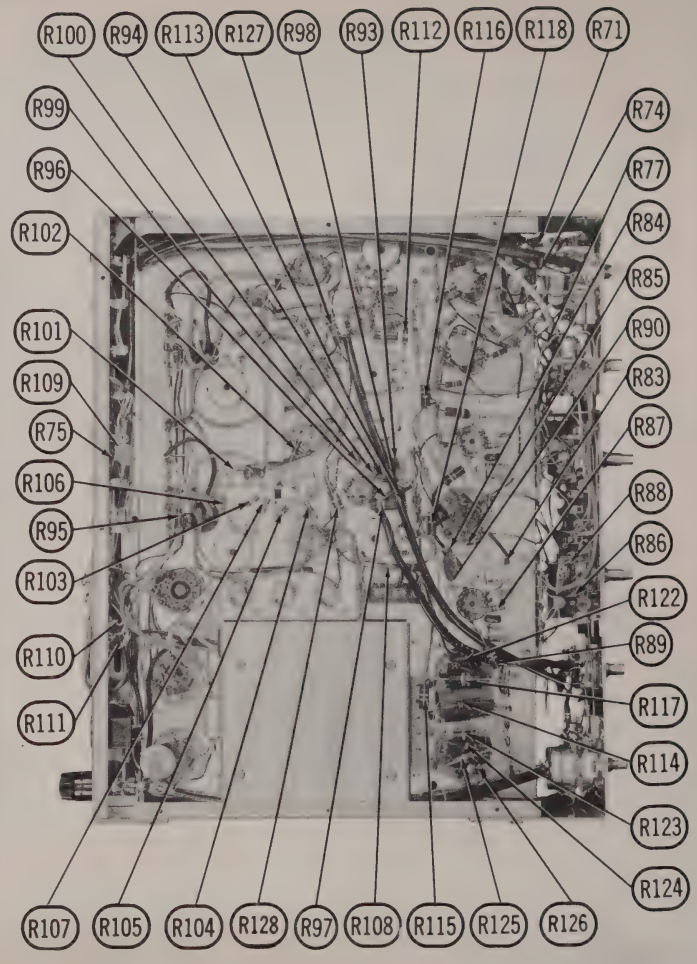
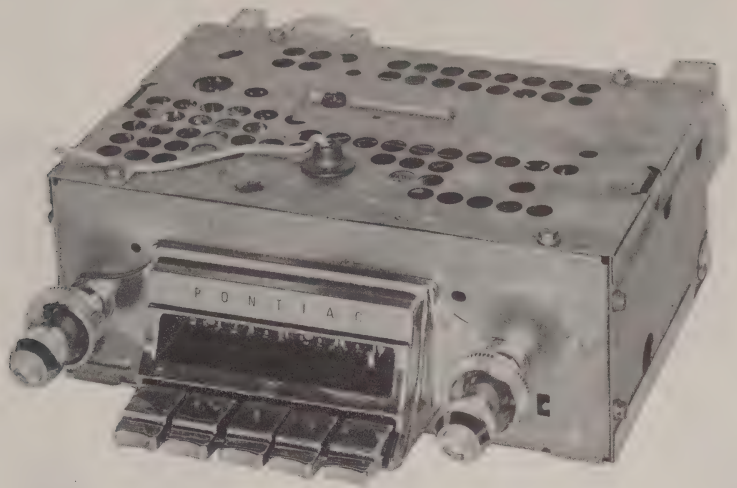



CHASSIS BOTTOM VIEW-RESISTOR IDENT. (R5-R70)




CHASSIS BOTTOM VIEW-RESISTOR IDENT. (R71-R128)




| | |
|---|---|
| TRADE NAME | Pontiac Model 989693 (For 1961 Pontiacs) |
| MANUFACTURER | Delco Radio Div., General Motors Corp., Kokomo, Indiana |
| TYPE SET | Battery Operated 4 Tube - 1 Transistor Custom Built Automobile AM Receiver |
| POWER SUPPLY | 12 Volts DC |
| TUNING RANGE—BROADCAST | 540 — 1600KC RATING 2.1 Amp. @ 12.6 Volts DC |

# ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading.

Suggested Alignment Tools:
A1 thru A5, A9, A10.... GENERAL CEMENT # 8282, 8606, 8606-L, 9091
WALSCO #2526, 2541, 2542, 2543, 2544
A6, A7, A8..... GENERAL CEMENT #5004, 5009, 8195, 8274, 8275, 8607, 8728, 8987, 8988, 8989, 9291
WALSCO #2515, 2520, 2522, 2523, 2531, 2532, 2534, 2537, 2538

| | SIGNAL GENERATOR COUPLING | SIGNAL GENERATOR FREQUENCY | RADIO DIAL SETTING | CONNECT VTVM | ADJUST | REMARKS |
|---|---|---|---|---|---|---|
| 1. | High side thru .1mfd to pin 7 (grid) of Converter. Low side to chassis. | 262KC (400~ Mod.) | High end stop. | DC probe to point (A). Common to chassis. | A1, A2, A3, A4 | Adjust for maximum deflection. |
| | Check setting of Oscillator core. Rear of core should be 1 5/8" from mounting end of coil form. | | | | | |
| 2. | High side thru 82mmf to antenna receptacle. Low side to chassis. | 1615KC | " | " | A6, A7, A8 | Adjust for maximum deflection. |
| 3. | " | 600KC | 600KC Signal. | " | A9, A10 | " |
| 4. | " | 1615KC | 1615KC Signal. | " | A7, A8 | " |
| 5. | " | 900KC | 900KC Signal. | " | | Adjust pointer adjustment until pointer coincides with 900 on dial. |
| 6. | With radio installed in car and antenna fully extended, tune in a weak station near 1000KC and retouch A8 for maximum output. | | | | | |

PUSHBUTTON ADJUSTMENT

1. Pull button out.
2. Tune manually to desired station.
3. Press button in firmly.

**HOWARD W. SAMS & CO., INC.** Indianapolis 6, Indiana

The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of KD947

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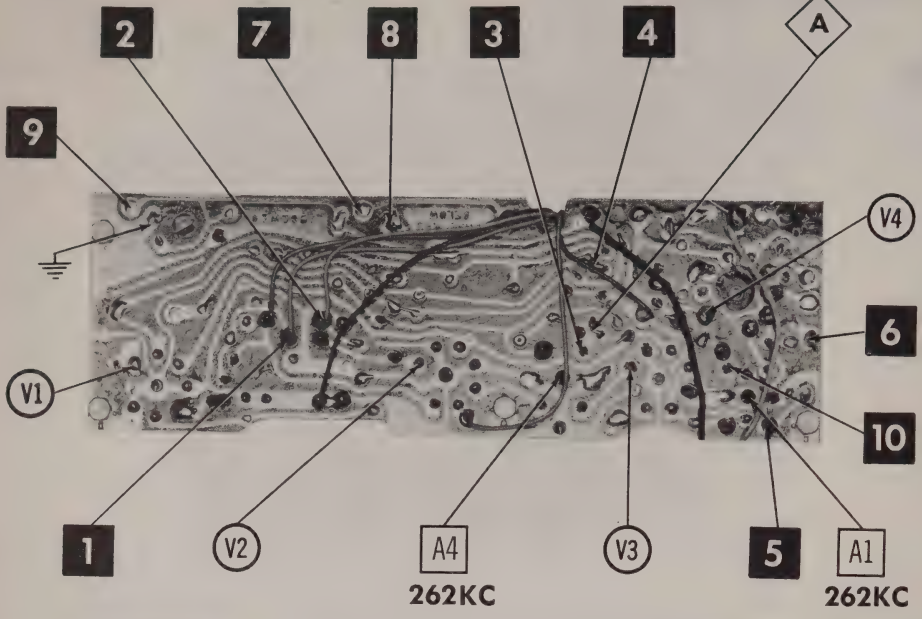
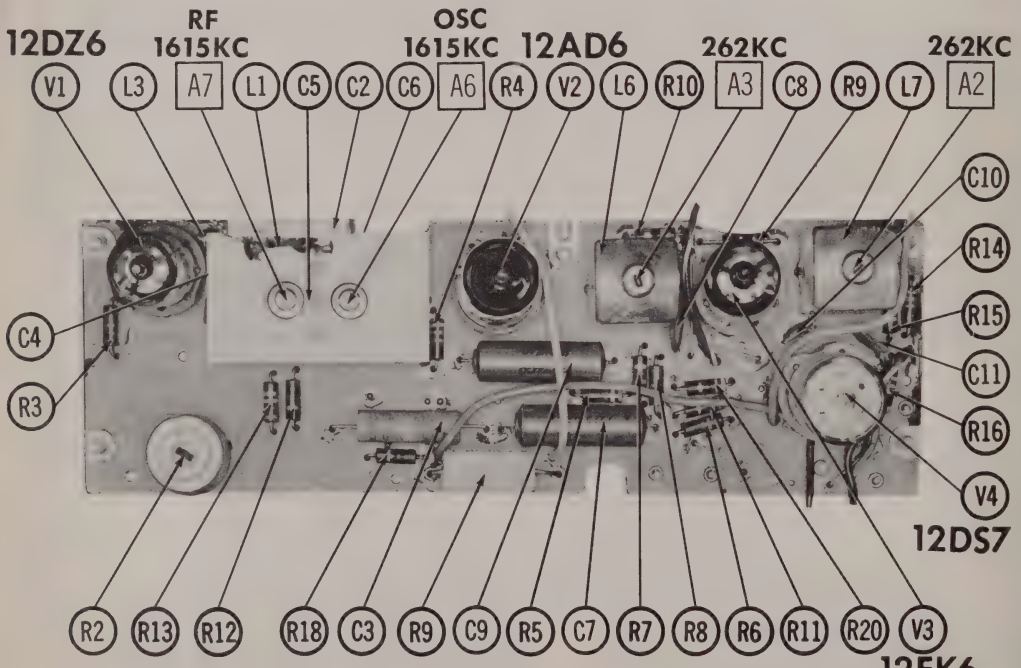


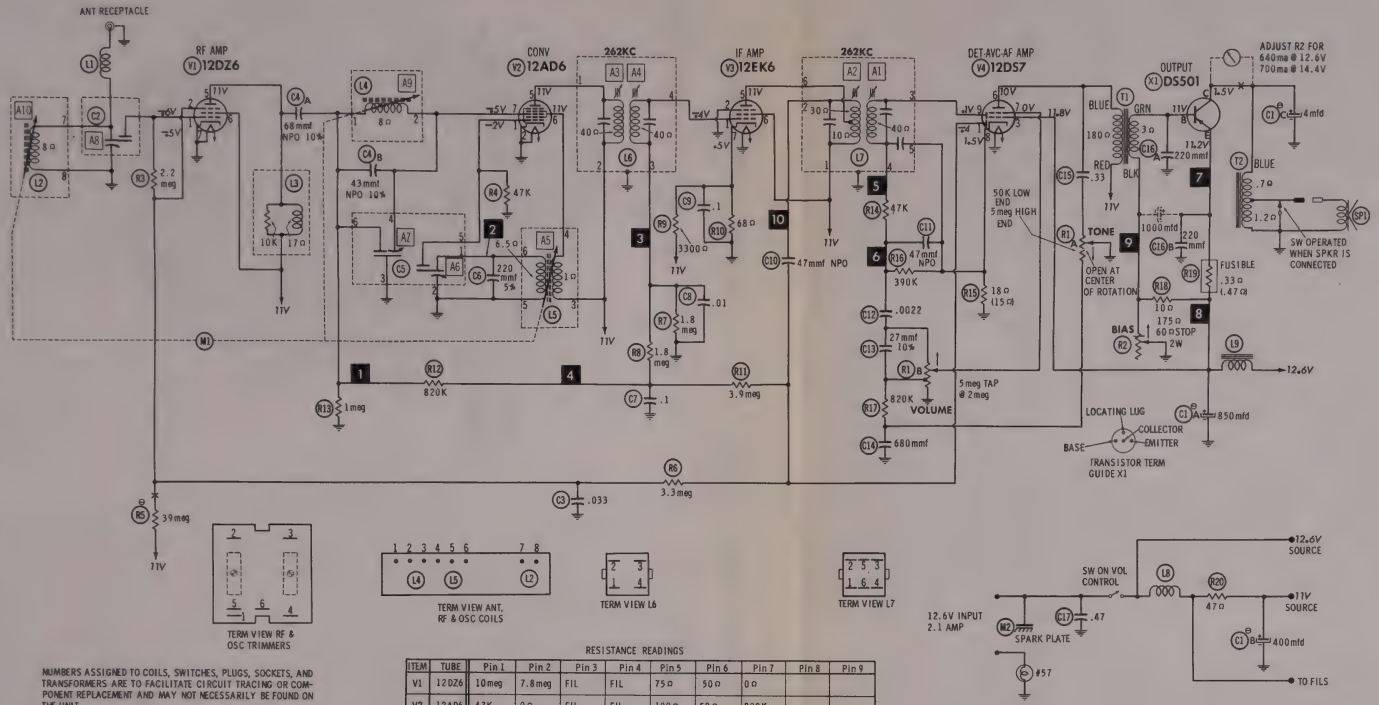

A Howard W. Sams CIRCUITRACE Photo

PRINTED BOARD

ARROWS INDICATING TUBE LOCATIONS ARE POINTING TO PIN 1 UNLESS OTHERWISE INDICATED




PRINTED BOARD-TOP VIEW




RESISTANCE READINGS

| ITEM | TUBE | Pin 1 | Pin 2 | Pin 3 | Pin 4 | Pin 5 | Pin 6 | Pin 7 | Pin 8 | Pin 9 |
|---|---|---|---|---|---|---|---|---|---|---|
| V1 | 12DZ6 | 10meg | 7.8meg | FIL | FIL | 75Ω | 50Ω | 0Ω | | |
| V2 | 12AD6 | 47K | 0Ω | FIL | FIL | 100Ω | 50Ω | 800K | | |
| V3 | 12EK6 | 1.2meg | 0Ω | FIL | FIL | 60Ω | 50Ω | 68Ω | | |
| V4 | 12DS7 | 4.5meg | TP | 3Ω | FIL | FIL | 230Ω | 0Ω | 18Ω | 437K |

TRANSISTOR CIRCUIT RESISTANCE FOR X1 NOT GIVEN BECAUSE OF THE WIDE VARIATION IN INTERNAL TRANSISTOR RESISTANCE.

NUMBERS ASSIGNED TO COILS, SWITCHES, PLUGS, SOCKETS, AND TRANSFORMERS ARE TO FACILITATE CIRCUIT TRACING OR COMPONENT REPLACEMENT AND MAY NOT NECESSARILY BE FOUND ON THE UNIT.

❶ SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM

ARROWS ON CONTROLS INDICATE CLOCKWISE ROTATION (CONTROL VIEWED FROM SHAFT END)

1. DC voltage measurements taken with vacuum tube voltmeter.
2. Socket connections shown as bottom views.
3. Measured values are from socket pin to common ground.
4. Battery voltage maintained at 12.6 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ±15% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

A PHOTOFACT STANDARD NOTATION SCHEMATIC with CIRCUITRACE

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**PONTIAC MODEL 989693**

# PARTS LIST AND DESCRIPTIONS

## TUBES

| ITEM No. | USE | TYPE (◆ GENERAL ELECTRIC) | ITEM No. | USE | TYPE (◆ RAYTHEON ◆ SYLVANIA) |
|---|---|---|---|---|---|
| V1 | RF Amplifier | 12DZ6 | V3 | IF Amplifier | 12EK6 |
| V2 | Converter | 12AD6 | V4 | Det.-AVC-AF Amp. | 12DS7 |

## TRANSISTORS

| ITEM No. | ORIG. TYPE | USE | REPLACEMENT DATA RCA PART No. | REPLACEMENT DATA RAYTHEON PART No. | NOTES |
|---|---|---|---|---|---|
| X1 | DS501 | Output | 2N176 | | PNP Note 1 |

Note 1. When replacing, apply silicone grease between transistor and heat sink. Tighten mounting screws securely. Check bias adjustment.

## ELECTROLYTIC CAPACITORS

| ITEM No. | RATING CAP. | RATING VOLT. | REPLACEMENT DATA DELCO PART No. | AEROVOX PART No. | CORNELL-DUBILIER PART No. | GENERAL ELECTRIC PART No. | MALLORY PART No. | PYRAMID PART No. | SPRAGUE PART No. |
|---|---|---|---|---|---|---|---|---|---|
| C1A | ■850 | 16 | 7273729 ① | AFH3-54-30 | | | WP300, 7 | | TVLS-3021 * |
| B | ▲400 | 16 | | | | | | | |
| C | 4 | 11.5AC | | | | | | | |

* Not normally in distributor's stock. Available thru distributor on order to manufacturer.
① Alternate Part #7273810.

## FIXED CAPACITORS

**Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.**

| ITEM No. | RATING | REMARKS | REPLACEMENT DATA AEROVOX PART No. | CENTRALAB PART No. | CORNELL-DUBILIER PART No. | ELMENCO PART No. | MALLORY PART No. | SPRAGUE PART No. |
|---|---|---|---|---|---|---|---|---|
| C2 | | #7274175 | | | | | | |
| C3 | .033 75V | | P288N-033 | DD-303 | CUB6S33 | IDP-4-333 | GEM-4133 | 4PS-S33 |
| C4A | 68 NPO 10% | | NPO-DI 68 | TCZ-68 | C10Q68C | CCTO-680 | CNO-468 | 10TCC-Q68 |
| B | 43 NPO 10% | | NPO-DI 39 | TCZ-43 | C10Q43C | CCTO-390 | CNO-439 | 10TCC-Q39 |
| C5 | | #7273693 | | | | | | |
| C6 | 220 5% | | 1469-00022 | TCZ-220 | 22R5T22 | CM-19B-221J | CNO-322 | MS-322 |
| C7 | .1 75V | | P288N-1 | DF-104 | CUB2P1 | IDP-2-104 | GEM-201 | 2TM-P10 |
| C8 | .01 | | BPD-01 | DD-103 | BYA10S1 | CCD-103 | B-110 | 5HK-S10 |
| C9 | .1 75V | | P288N-1 | DF-104 | CUB2P1 | IDP-2-104 | GEM-201 | 2TM-P10 |
| C10 | 47 NPO | | NPO-DI 47 | DTZ-47 | C10Q47C | CCTO-470 | CNO-447 | 10TCC-Q47 |
| C11 | 47 NPO | | NPO-DI 47 | DTZ-47 | C10Q47C | CCTO-470 | CNO-447 | 10TCC-Q47 |
| C12 | .0022 75V | | P288N-0022 | D6-222 | CUB6D22 | 6DP-1-222 | GEM-6222 | 6TM-D22 |
| C13 | 27 10% | | DI-27 | DD-270 | L10Q27 | CCD-270 | GP427 | 10TS-Q27 |
| C14 | 680 | | DI-680 | DD-681 | BYA10T68 | CCD-681 | B-368 | 10TS-T68 |

## FIXED CAPACITORS (cont)

| ITEM No. | RATING | REMARKS | REPLACEMENT DATA AEROVOX PART No. | CENTRALAB PART No. | CORNELL-DUBILIER PART No. | ELMENCO PART No. | MALLORY PART No. | SPRAGUE PART No. |
|---|---|---|---|---|---|---|---|---|
| C15 | .33 100V | | P288N-33 | | DPMS4P33 | 10P-4-334 | GEM-4033 | 2PS-P33 |
| C16A | 220 | | DI-220 | DD-221 | L10T22 | CCD-221 | B-322 | 10TS-T22 |
| B | 220 | | DI-220 | DD-221 | L10T22 | CCD-221 | B-322 | 10TS-T22 |
| C17 | .47 100V | | P288N-47 | | CUB2P47 | IDP-3-474 | GEM-2047 | 2TM-D47 |

# Delco Part Number.

## CONTROLS

| ITEM No. | RATING RESISTANCE | RATING WATTS | REPLACEMENT DATA DELCO PART No. | CENTRALAB PART No. | CLAROSTAT PART No. | CTS-IRC PART No. | MALLORY PART No. | INSTALLATION NOTES |
|---|---|---|---|---|---|---|---|---|
| R1A | 5meg* | 1/2 | 7277542 | | | | | |
| B | 5meg 2meg Tap | 1/2 | | | | † QJ-1391A | ■ UE4246-S | Tone Volume |
| C | Switch | | | | | | | Power Off-On |
| R2 | 175Ω 60Ω Stop | 2(WW) | 1221422 ① | | | | | Bias |

* Open ⓐ Center of rotation (Low end - 50K, High end 5meg).
① Temperature Compensated.
■ "STA-LOC" equivalent: FN56X, RU56T26, OS937A, IS1625, US41.
† "CONCENTRIKIT" Equivalent: K-8 Kit with Base Elements and Shafts:
B12-341, P17-031 (Panel)
B18-141X, R9-115 (Rear
76-1 (Switch)
S40 (Bushing)

## RESISTORS

**All wattages 1/2 watt, or less, unless otherwise listed.**

| ITEM No. | RATING | REPLACEMENT DATA IRC PART No. | REPLACEMENT DATA WORKMAN TV PART No. | REMARKS |
|---|---|---|---|---|
| R3 | 2.2meg | | | |
| R4 | 47K | | | |
| R5 | 39meg | | | Note 1 |
| R6 | 3.3meg | | | |
| R7 | 1.8meg | | | |
| R8 | 1.8meg | | | |
| R9 | 3300Ω | | | |
| R10 | 68Ω | | | |
| R11 | 3.9meg | | | |

| ITEM No. | RATING | REPLACEMENT DATA IRC PART No. | REPLACEMENT DATA WORKMAN TV PART No. | REMARKS |
|---|---|---|---|---|
| R12 | 820K | | | |
| R13 | 1meg | | | |
| R14 | 47K | | | |
| R15 | 18Ω | | | (15Ω) * |
| R16 | 390K | | | |
| R17 | 820K | | | |
| R18 | 10Ω | | | |
| R19 | .33Ω | | | (.47Ω) * |
| R20 | 47Ω | | | |

Note 1. Not used in some versions.
* Value used when R5 is not used.

# PARTS LIST AND DESCRIPTIONS (Continued)

## COILS (RF-IF)

| ITEM No. | USE | REPLACEMENT DATA | | | | | NOTES |
|---|---|---|---|---|---|---|---|
| | | DELCO PART No. | Merit PART No. | Miller PART No. | Stancor PART No. | Workman TV PART No. | |
| L1 | RF Choke(6.5uh) | 7255738 | BC-565 | 4610 | RTC-8520 | T858 | |
| L2 | Ant. | 1221138 | | | | | |
| L3 | RF Choke (1.8MH) | 7269684 | BC-514 | 4664 | RTC-8533 | T875 | |
| L4 | RF | 1221138 | | | | | |
| L5 | Osc. | 1221151 | | | | | |
| L6 | Input IF | 1221257 | BC-344 | 13-PH1 | RTC-8644 | T655 | |
| L7 | Output IF | 1221253 | BC-424 | | | | |
| L8 | Hash Choke (1.4uh) | 1217846 | | | | | |

## FILTER CHOKE

| ITEM No. | RATINGS | | | REPLACEMENT DATA | | | | | NOTES |
|---|---|---|---|---|---|---|---|---|---|
| | CURRENT (Measured) | DC RES. | INDUCTANCE (0 CURRENT 1000 ∿) | DELCO PART No. | Merit PART No. | Stancor PART No. | Thordarson PART No. | Triad PART No. | |
| L9 | .750A | .7Ω | .011A | 7274342 | | TC-2 | | | |

## TRANSFORMER (DRIVER)

| ITEM No. | TURNS RATIO | | REPLACEMENT DATA | | | | | NOTES |
|---|---|---|---|---|---|---|---|---|
| | PRI. | SEC. | DELCO PART No. | Merit PART No. | Stancor PART No. | Thordarson PART No. | Triad PART No. | |
| T1 | 6.8 | 1 | 1221590 | | TA-48 | | | |

## TRANSFORMER (AUDIO OUTPUT)

| ITEM No. | IMPEDANCE | REPLACEMENT DATA | | | | | NOTES |
|---|---|---|---|---|---|---|---|
| | PRI. | DELCO PART No. | Merit PART No. | Stancor PART No. | Thordarson PART No. | Triad PART No. | |
| T2 | 10Ω Tap @ 3-4Ω | 1221428 | | TA-50 | | | |

## SPEAKER

| ITEM No. | TYPE | | | REPLACEMENT DATA | | NOTES |
|---|---|---|---|---|---|---|
| | SIZE | FIELD | V. C. IMP. | DELCO PART No. | QUAM PART No. | |
| SP1 | 4"x 10" | PM | 3-4Ω | 7276482 | 410A2 | |

## MISCELLANEOUS

| ITEM No. | PART NAME | DELCO PART No. | NOTES |
|---|---|---|---|
| M1 | Tuner | | Pushbutton Type, Series P2 |
| M2 | Spark Plate | 7271564 | |

## CABINETS & CABINET PARTS

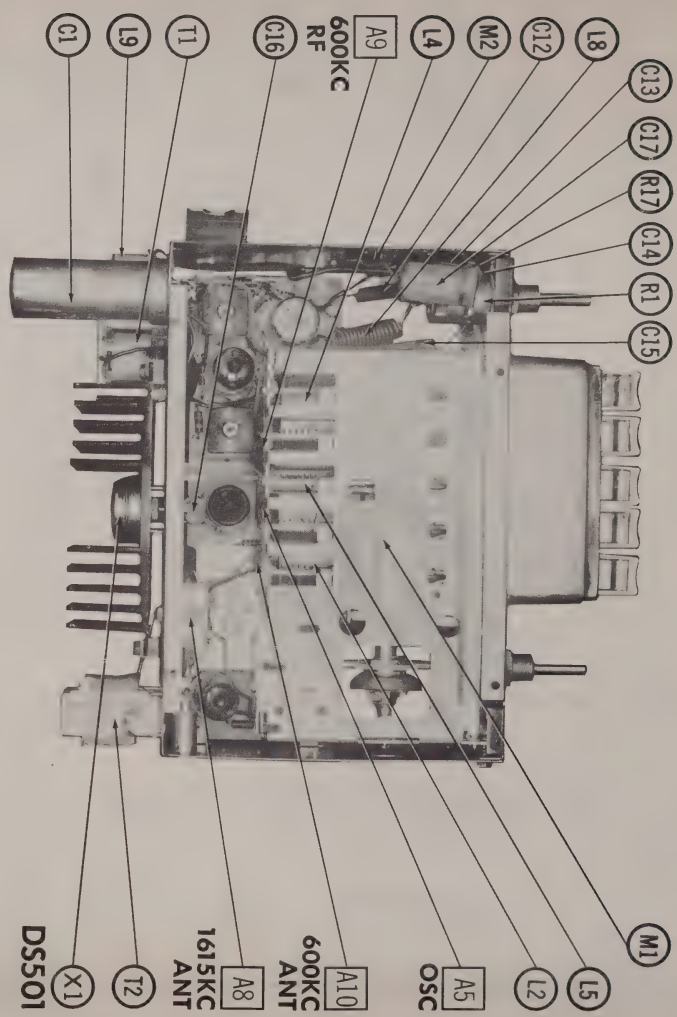
**(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)**

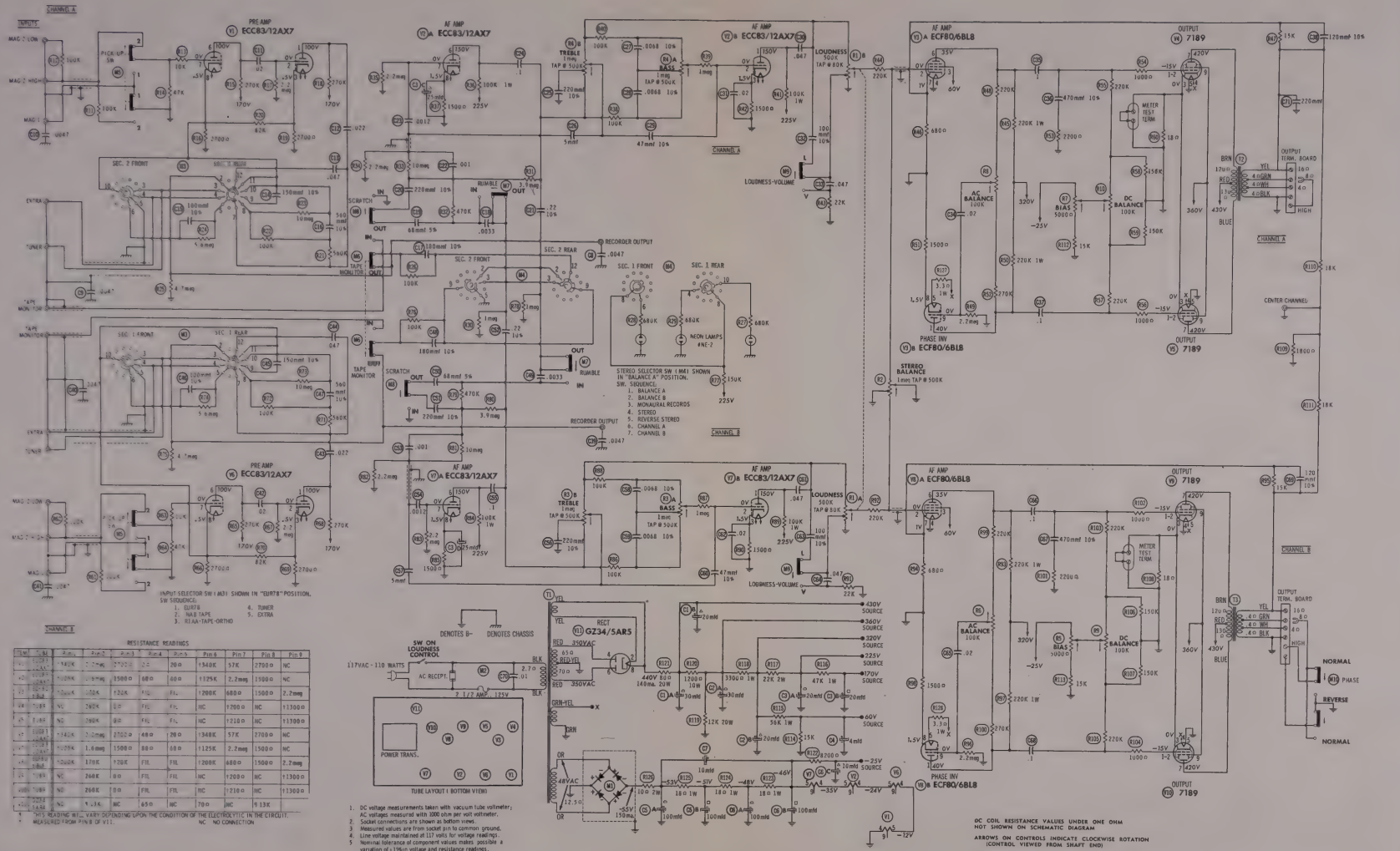
| NAME | PART NO. | DESCRIPTION |
|---|---|---|
| Dial Pointer | 1221513 | |
| Pushbutton | 7273345 | |
| Knob | 535908 | Tuning, Volume |
| Knob | 538621 | Tone |
| Knob | 538718 | Dummy |

## WIRING DATA

| | |
|---|---|
| General-use Unshielded Hook-up Wire | Use BELDEN No. 8530 (Solid) Available in Ten Colors<br>8524 (Stranded) Available in Ten Colors |
| Shielded Hook-up Wire | Use BELDEN No. 8885 |
| Bonding Strap | Use BELDEN No. 8661 |

## CHASSIS—TOP VIEW




CHANNEL A
CHANNEL B
PRE AMP ECC83/12AX7
AF AMP ECC83/12AX7
AF AMP ECF80/6BL8
PHASE INV ECF80/6BL8
OUTPUT 7189
SEC. 2 FRONT
SEC. 2 REAR
SEC. 1 FRONT
SEC. 1 REAR
TREBLE
BASS
LOUDNESS
LOUDNESS-VOLUME
STEREO BALANCE
AC BALANCE
DC BALANCE
BIAS
METER TEST TERM
OUTPUT TERM. BOARD
CENTER CHANNEL
RECORDER OUTPUT
TAPE MONITOR
SCRATCH
RUMBLE
NEON LAMPS #NE-2
PHASE
REVERSE
NORMAL
RECT GZ34/5AR5
POWER TRANS.
SW ON LOUDNESS CONTROL
AC RECEPT.
117VAC - 110 WATTS
DENOTES B-
DENOTES CHASSIS
TUBE LAYOUT ( BOTTOM VIEW)
INPUT-SELECTOR SW ( M3) SHOWN IN "EURTB" POSITION. SW SEQUENCE:
1. EURTB
2. NAB TAPE
3. RIAA-TAPE-ORTHO
4. TUNER
5. EXTRA
STEREO SELECTOR SW ( M4) SHOWN IN "BALANCE A" POSITION. SW. SEQUENCE:
1. BALANCE A
2. BALANCE B
3. MONAURAL RECORDS
4. STEREO
5. REVERSE STEREO
6. CHANNEL A
7. CHANNEL B
RESISTANCE READINGS
1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured with 1000 ohm per volt voltmeter.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common ground.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance of component values makes possible a variation of ±15% in voltage and resistance readings.
6. All controls at minimum, proper output load connected.
DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM
ARROWS ON CONTROLS INDICATE CLOCKWISE ROTATION (CONTROL VIEWED FROM SHAFT END)
NUMBERS ASSIGNED TO COILS, SWITCHES, PLUGS, SOCKETS, AND TRANSFORMERS ARE TO FACILITATE CIRCUIT TRACING OR COMPONENT REPLACEMENT AND MAY NOT NECESSARILY BE FOUND ON THE UNIT.

| ITEM | Pin 1 | Pin 2 | Pin 3 | Pin 4 | Pin 5 | Pin 6 | Pin 7 | Pin 8 | Pin 9 |
|---|---|---|---|---|---|---|---|---|---|
| V1 | 100K | 2.2meg | 2700Ω | 0Ω | 0Ω | 340K | 57K | 270Ω | NC |
| V2 | 100K | 1.6meg | 1500Ω | 68Ω | 68Ω | 125K | 2.2meg | 150Ω | NC |
| V3 | 100K | 100K | 120K | FIL | FIL | 120K | 680Ω | 150Ω | 2.2meg |
| V4 | 100K | NC | 260K | 0Ω | FIL | NC | 120Ω | NC | 113Ω |
| V5 | 100K | NC | 260K | 0Ω | FIL | NC | 121Ω | NC | 113Ω |
| V6 | 100K | 2.2meg | 2700Ω | 68Ω | 0Ω | 340K | 57K | 270Ω | NC |
| V7 | 100K | 1.6meg | 1500Ω | 68Ω | 68Ω | 125K | 2.2meg | 150Ω | NC |
| V8 | 100K | 100K | 120K | FIL | FIL | 120K | 680Ω | 150Ω | 2.2meg |
| V9 | 100K | NC | 260K | 0Ω | FIL | NC | 120Ω | NC | 113Ω |
| V10 | 100K | NC | 260K | 0Ω | FIL | NC | 121Ω | NC | 113Ω |
| V11 | 100K | NC | 9.1K | NC | 65Ω | NC | 70Ω | NC | 9.1K |

* THIS READING WILL VARY DEPENDING UPON THE CONDITION OF THE ELECTROLYTIC IN THE CIRCUIT. MEASURED FROM PIN 8 OF V11.
NC NO CONNECTION

A PHOTOFACT STANDARD NOTATION SCHEMATIC

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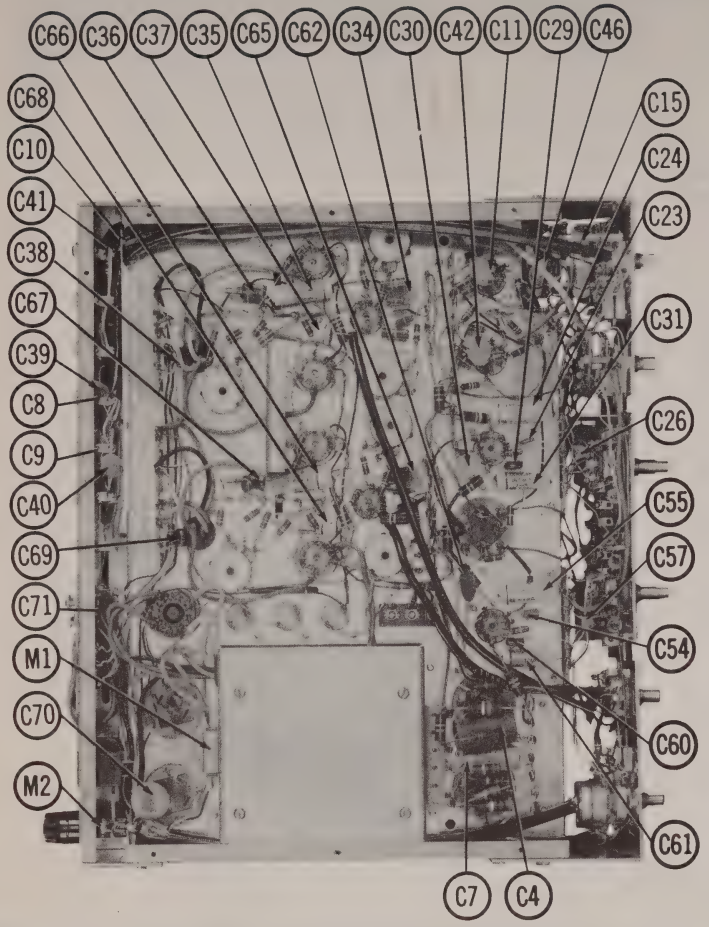
H. H. SCOTT MODEL 299B




CHASSIS BOTTOM VIEW-CAPACITOR & MISC. IDENT.

## ADJUSTMENTS

### BIAS ADJUSTMENT

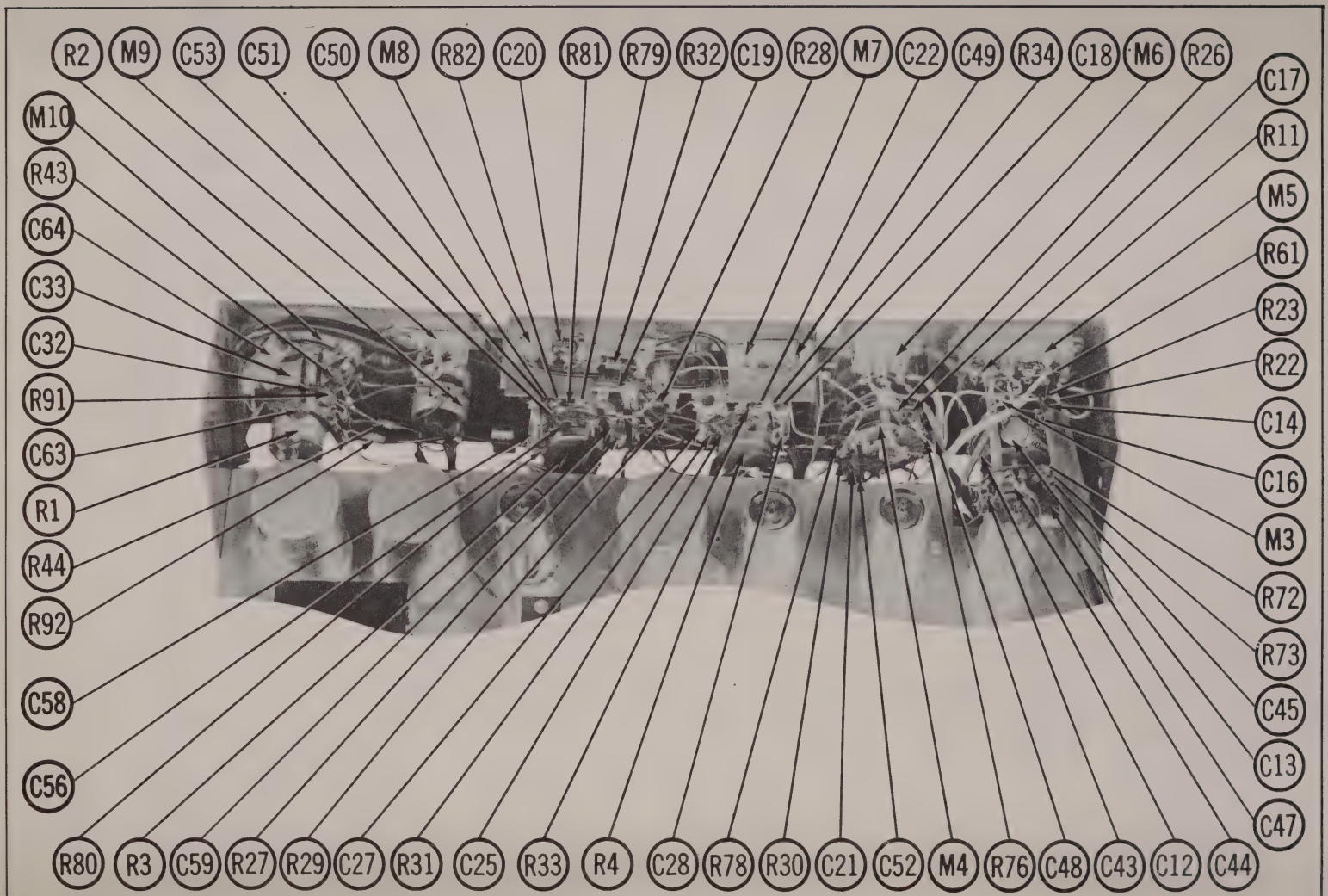
Disconnect the two straps on the meter terminal strip (located on top of chassis). Connect a millimeter (100-120ma. range) between the center terminal and the channel A terminal (the one nearest front of chassis). Adjust the channel A Bias control for 55ma. Move the connection from channel A terminal to channel B terminal, and repeat adjustment with the channel B Bias control. Reconnect the two straps.

### DC BALANCE ADJUSTMENT

Connect a 16Ω 10W resistor across output terminals of the channel under test. Connect the scope across the resistor and set Horizontal Selector to "LINE". Remove the Phase Inverter tube of channel under test and adjust the proper DC Balance control for MINIMUM 120∿ response on scope. Repeat entire procedure for other channel. Replace Phase Inverter tube. Recheck Bias as above.

### AC BALANCE ADJUSTMENT

The AC Balance control is adjusted for MINIMUM second harmonic distortion using a distortion or wave analyzer.




CONTROL PANEL-REAR VIEW

# PARTS LIST AND DESCRIPTIONS

## TUBES

| ITEM No. | USE | TYPE (GENERAL ELECTRIC • RAYTHEON • SYLVANIA) |
|---|---|---|
| V1 | Channel A Preamp. | ECC83/12AX7 |
| V2 | Channel A AF Amp. | ECC83/12AX7 |
| V3 | Channel A AF Amp. - Phase Inverter | ECF80/6BL8 |
| V4 | Channel A Output | 7189 |
| V5 | Channel A Output | 7189 |
| V6 | Channel B Preamp. | ECC83/12AX7 |
| V7 | Channel B AF Amp. | ECC83/12AX7 |
| V8 | Channel B AF Amp. - Phase Inverter | ECF80/6BL8 |
| V9 | Channel B Output | 7189 |
| V10 | Channel B Output | 7189 |
| V11 | Rectifier | GZ34/5AR4 |

## ELECTROLYTIC CAPACITORS

| ITEM No. | RATING CAP. | RATING VOLT. | H. H. Scott PART No. | AEROVOX PART No. | CORNELL-DUBILIER PART No. | GENERAL ELECTRIC PART No. | MALLORY PART No. | PYRAMID PART No. | SPRAGUE PART No. |
|---|---|---|---|---|---|---|---|---|---|
| C1A | ▲30 | 475 | CEC-30-20/450 | AFH2-69 | B0500 | XC2-26 | FP284 | TMD-2760 | TVL-2935 |
| B | ▲20 | 475 | | | | | | | |
| C2A | ▲30 | 475 | CEC-30-20/450 | AFH2-69 | B0500 | XC2-26 | FP284 | TMD-2760 | TVL-2935 |
| B | ▲20 | 475 | | | | | | | |
| C3A | ▲20 | 450 | CEC-2X20-2X25 | AFH4-67 | D0520 | XC4-54 | FP430, 97 | TMQ-4475 | TVLS-4712, 1* |
| B | ■20 | 450 | | | | | | | |
| C | ▲25 | 25 | | | | | | | |
| D | 25 | 25 | | | | | | | |
| C4 | 4 | 250 | CET4-250 | PRS1550 | BBR4-250 | QT1-2.1 | TC697 | TD-4-250 | TVA-1501 |
| C5A | ▲100 | 75 | CEC2X100-100CF | | | | | | |
| B | ■100 | 75 | | | | | | | |
| C | ▲10 | 75 | ① | | | | | | |
| C6A | ▲100 | 75 | CEC2X100-100CF | | | | | | |
| B | ■100 | 75 | | | | | | | |
| C | ▲10 | 75 | | | | | | | |
| C7 | 10 | 25 | CET-10/25 | SRE25V10 | BBR10-25 | QT1-5 | TC22 | TD-10-25 | TVA-1204 |

* Not normally in distributor's stock. Available thru distributor on order to manufacturer.
① C5C is not used.

## FIXED CAPACITORS

| ITEM No. | RATING | REMARKS | AEROVOX PART No. | CENTRALAB PART No. | CORNELL-DUBILIER PART No. | ELMENCO PART No. | MALLORY PART No. | SPRAGUE PART No. |
|---|---|---|---|---|---|---|---|---|
| C8 | .0047 | | BPD-0047 | DD-472 | BYA10D47M | CCD-472 | B-247 | 5HK-D47 |
| C9 | .0047 | | BPD-0047 | DD-472 | BYA10D47M | CCD-472 | B-247 | 5HK-D47 |
| C10 | .0047 | | BPD-0047 | DD-472 | BYA10D47M | CCD-472 | B-247 | 5HK-D47 |
| C11 | .02 | | BPD-02 | DD-203 | BYB6S2 | CCD-203 | B-120 | 5HK-S20 |
| C12 | .022 400V | | P488N-022 | DD-203 | CUB4S22 | 4DP-2-223 | GEM-4122 | 4TM-S22 |
| C13 | .047 400V | | P488N-047 | DD-503 | CUB4S47 | 4DP-3-473 | GEM-4147 | 4TM-S47 |
| C14 | 150 10% | | 1469-00015 | TCZ-150 | 22R5T15 | CM-19B-151K | MCB236 | MS-315 |
| C15 | 100 10% | | 1469-0001 | TCZ-100 | 22R5T1 | CM-19B-101K | MCB235 | MS-31 |
| C16 | 560 10% | | 1469-00056 | | 5R5T56 | CM-19B-561K | MCJ247 | MS-356 |
| C17 | 180 10% | | 1469-00018 | TCZ-180 | 22R5T18 | CM-19B-181K | CNO-318 | MS-318 |
| C18 | .0033 400V | | P488N-0033 | D6-332 | CUB6D33 | 6DP-1-332 | GEM-6233 | 6TM-D33 |
| C19 | 68 5% | | 1469-000068 | TCZ-68 | 22R5Q68 | CM-19B-680J | CNO-468 | MS-468 |
| C20 | 220 10% | | 1469-00022 | TCZ-220 | 22R5T22 | CM-19B-221K | CNO-312 | MS-322 |
| C21 | .22mmf 10% | | | | | | | |
| C22 | .001 | | BPD-001 | DD-102 | BYA10D1 | CCD-102 | B-210 | 5HK-D10 |
| C23 | .0012 | | DI-1200 | DD-122 | L10DI2 | CCD-122 | B-212 | 10TS-DI2 |
| C24 | .1 400V | | P488N-1 | DF-104 | CUB4P1 | 4DP-3-104 | GEM-401 | 4TM-P10 |
| C25 | 220 10% | | 1469-00022 | TCZ-220 | 22R5T22 | CM-19B-221K | CNO-322 | MS-322 |
| C26 | 5 | | DI-5 | DD-050 | L10V5 | CCD-050 | GP550 | 10TS-V50 |
| C27 | .0068 400V 10% | | V84C4D68-10% | | PM6D68 | 6DP-1-682 | GEM-16268 | 6TM-D68 |
| C28 | .0068 400V 10% | | V84C4D68-10% | | PM6D68 | 6DP-1-682 | GEM-16268 | 6TM-D68 |
| C29 | 47 10% | | 1469-000047 | TCZ-47 | 22R5Q47 | CM-19B-470K | CNO-447 | MS-447 |
| C30 | .047 400V | | P488N-047 | DD-503 | CUB4S47 | 4DP-3-473 | GEM-4147 | 4TM-S47 |
| C31 | .02 | | BPD-02 | DD-203 | BYB6S2 | CCD-203 | B-120 | 5HK-S20 |
| C32 | 100 10% | | 1469-0001 | TCZ-100 | 22R5T1 | CM-19B-101K | MCB235 | MS-31 |
| C33 | .047 400V | | P488N-047 | DD-503 | CUB4S47 | 4DP-3-473 | GEM-4147 | 4TM-S47 |
| C34 | .02 | | BPD-02 | DD-203 | BYB6S2 | CCD-203 | B-120 | 5HK-S20 |
| C35 | .1 400V | | P488N-1 | DF-104 | CUB4P1 | 4DP-3-104 | GEM-401 | 4TM-P10 |
| C36 | 470 10% | | 1469-00047 | | 5R5T47 | CM-19B-471K | MCJ244 | MS-347 |
| C37 | .1 400V | | P488N-1 | DF-104 | CUB4P1 | 4DP-3-104 | GEM-401 | 4TM-P10 |
| C38 | 120 10% | | 1469-00012 | TCZ-120 | 225T12 | CM-19B-121K | CNO-312 | MS-312 |

## FIXED CAPACITORS (cont)

| ITEM No. | RATING | REMARKS | AEROVOX PART No. | CENTRALAB PART No. | CORNELL-DUBILIER PART No. | ELMENCO PART No. | MALLORY PART No. | SPRAGUE PART No. |
|---|---|---|---|---|---|---|---|---|
| C39 | .0047 | | BPD-0047 | DD-472 | BYA10D47M | CCD-472 | B-247 | 5HK-D47 |
| C40 | .0047 | | BPD-0047 | DD-472 | BYA10D47M | CCD-472 | B-247 | 5HK-D47 |
| C41 | .0047 | | BPD-0047 | DD-472 | BYA10D47M | CCD-472 | B-247 | 5HK-D47 |
| C42 | .02 | | BPD-02 | DD-203 | BYB6S2 | CCD-203 | B-120 | 5HK-S20 |
| C43 | .022 400V | | P488N-022 | DD-203 | CUB4S22 | 4DP-3-223 | GEM-4122 | 4TM-S22 |
| C44 | .047 400V | | P488N-047 | DD-503 | CUB4S47 | 4DP-3-473 | GEM-4147 | 4TM-S47 |
| C45 | 150 10% | | 1469-00015 | TCZ-150 | 22R5T15 | CM-19B-151K | MCB236 | MS-315 |
| C46 | 100 10% | | 1469-0001 | TCZ-100 | 22R5T1 | CM-19B-101K | MCB235 | MS-31 |
| C47 | 560 10% | | 1469-00056 | | 5R5T56 | CM-19B-561K | MCJ247 | MS-356 |
| C48 | 180 10% | | 1469-00018 | TCZ-180 | 22R5T18 | CM-19B-181K | CNO-318 | MS-318 |
| C49 | .0033 400V | | P488N-0033 | D6-332 | CUB6D33 | 6DP-1-332 | GEM-6233 | 6TM-D33 |
| C50 | 68 5% | | 1469-000068 | TCZ-68 | 22R5Q68 | CM-19B-680J | CNO-468 | MS-468 |
| C51 | 220 10% | | 1469-00022 | TCZ-220 | 22R5T22 | CM-19B-221K | CNO-322 | MS-322 |
| C52 | .22mmf 10% | | | | | | | |
| C53 | .001 | | BPD-001 | DD-102 | BYA10D1 | CCD-102 | B-210 | 5HK-D10 |
| C54 | .0012 | | DI-1200 | DD-122 | L10DI2 | CCD-122 | B-212 | 10TS-DI2 |
| C55 | .1 400V | | P488N-1 | DF-104 | CUB4P1 | 4DP-3-104 | GEM-401 | 4TM-P10 |
| C56 | 220 10% | | 1469-00022 | TCZ-220 | 22R5T22 | CM-19B-221K | CNO-322 | MS-322 |
| C57 | 5 | | DI-5 | DD-050 | L10V5 | CCD-050 | GP550 | 10TS-V50 |
| C58 | .0068 400V 10% | | V84C4D68-10% | | PM6D68 | 6DP-1-682 | GEM-16268 | 6TM-D68 |
| C59 | .0068 400V 10% | | V84C4D68-10% | | PM6D68 | 6DP-1-682 | GEM-16268 | 6TM-D68 |
| C60 | 47 10% | | 1469-000047 | TCZ-47 | 22R5Q47 | CM-19B-470K | CNO-447 | MS-447 |
| C61 | .047 400V | | P488N-047 | DD-503 | CUB4S47 | 4DP-3-473 | GEM-4147 | 4TM-S47 |
| C62 | .02 | | BPD-02 | DD-203 | BYB6S2 | CCD-203 | B-120 | 5HK-S20 |
| C63 | 100 10% | | 1469-0001 | TCZ-100 | 22R5T1 | CM-19B-101K | MCB235 | MS-31 |
| C64 | .047 400V | | P488N-047 | DD-503 | CUB4S47 | 4DP-3-473 | GEM-4147 | 4TM-S47 |
| C65 | .02 | | BPD-02 | DD-203 | BYB6S2 | CCD-203 | B-120 | 5HK-S20 |
| C66 | .1 400V | | P488N-1 | DF-104 | CUB4P1 | 4DP-3-104 | GEM-401 | 4TM-P10 |
| C67 | 470 10% | | 1469-00047 | | 5R5T47 | CM-19B-471K | MCJ244 | MS-347 |
| C68 | .1 400V | | P488N-1 | DF-104 | CUB4S47 | 4DP-3-104 | GEM-401 | 4TM-P10 |
| C69 | 120 10% | | 1469-00012 | TCZ-120 | 22R5T12 | CM-19B-121K | CNO-312 | MS-312 |
| C70 | .01 | | BPD-01 | DD-103 | BYA10S1 | CCD-103 | B-110 | 5HK-S10 |
| C71 | 220 | | DI-220 | DD-221 | L10T22 | CCD-221 | B-322 | 10TS-T22 |

## CONTROLS

| ITEM No. | RATING RESISTANCE | RATING WATTS | H. H. Scott PART No. | CENTRALAB PART No. | CLAROSTAT PART No. | CTS-IRC PART No. | MALLORY PART No. | INSTALLATION NOTES |
|---|---|---|---|---|---|---|---|---|
| R1A | 500K | ½ | RVCD-500KT-3FSW | BT-66 | | | FA55T15 | Loudness, Channel A |
| | 80K Tap | | | | | | | |
| B | 500K | ½ | | STR-66 | | | RU55T15 | Loudness, Channel B |
| | 80K Tap | | | | | | | |
| C | Shaft | | | Not Req. | | | CS3500 | |
| D | Switch | | | KR-1 | | | US41 | Power Off-On |
| R2A | 1meg | ½ | RCV-1MST-3F | BT-71 | A47F5-1meg | Q19-137X | UT-443 | Stereo Balance |
| | 500K Tap | | | | | | | |
| B | Shaft | | | Not Req. | FS-3 | Not Req. | Not Req. | |
| R3A | 1meg | ½ | RCVC-1MT | F1-56 | | | ■ UE4135 | Bass, Channel B |
| | 500K Tap | | | | | | | |
| B | 1meg | ½ | | R2-56 | | | | Treble, Channel B |
| | 500K Tap | | | | | | | |
| R4A | 1meg | ½ | RCVC-1MT | F1-56 | | | ■ UE4135 | Bass, Channel A |
| | 500K Tap | | | | | | | |
| B | 1meg | ½ | | R2-56 | | | | Treble, Channel A |
| | 500K Tap | | | | | | | |
| R5A | 5000Ω | ½ | RCV-5K-P | BX-10 | A47-5000-S | Q11-114 | SU-14 | Bias, Channel B |
| B | Shaft | | | Not Req. | FKS-1/4 | Not Req. | Not Req. | |
| R6A | 100K | ½ | RCV-100K-P | BX-40 | A47-100K-S | Q11-128 | SU-41 | AC Balance, Channel B |
| B | Shaft | | | Not Req. | FKS-1/4 | Not Req. | Not Req. | |
| R7A | 5000Ω | ½ | RCV-5K-P | BX-10 | A47-5000-S | Q11-114 | SU-14 | Bias, Channel A |
| B | Shaft | | | Not Req. | FKS-1/4 | Not Req. | Not Req. | |
| R8A | 100K | ½ | RCV-100K-P | BX-40 | A47-100K-S | Q11-128 | SU-41 | AC Balance, Channel A |
| B | Shaft | | | Not Req. | FKS-1/4 | Not Req. | Not Req. | |
| R9A | 100K | ½ | RCV-100K-P | BX-40 | A47-100K-S | Q11-128 | SU-41 | DC Balance, Channel B |
| B | Shaft | | | Not Req. | FKS-1/4 | Not Req. | Not Req. | |
| R10A | 100K | ½ | RCV-100K-P | BX-40 | A47-100K-S | Q11-128 | SU-41 | DC Balance, Channel A |
| B | Shaft | | | Not Req. | FKS-1/4 | Not Req. | Not Req. | |

■ "STA-LOC" equivalent: FB16T15, RU16T15, OS687, IS937.



FOLDER 11
H. H. SCOTT
MODEL 299B

# PARTS LIST AND DESCRIPTIONS (Continued)

## RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

| ITEM No. | RATING | REPLACEMENT DATA | | |
|---|---|---|---|---|
| | | IRC PART No. | WORKMAN TV PART No. | REMARKS |
| R11 | 100K | | | |
| R12 | 100K | | | |
| R13 | 10K | | | |
| R14 | 47K | | | |
| R15 | 270K | | | |
| R16 | 2700Ω | | | |
| R17 | 2.2meg | | | |
| R18 | 270K | | | |
| R19 | 2700Ω | | | |
| R20 | 82K | | | |
| R21 | 560K | | | |
| R22 | 100K | | | |
| R23 | 10meg | | | |
| R24 | 5.6meg | | | |
| R25 | 4.7meg | | | |
| R26 | 100K | | | |
| R27 | 680K | | | |
| R28 | 680K | | | |
| R29 | 680K | | | |
| R30 | 1meg | | | |
| R31 | 3.9meg | | | |
| R32 | 470K | | | |
| R33 | 10meg | | | |
| R34 | 2.2meg | | | |
| R35 | 2.2meg | | | |
| R36 | 100K 1W | | | |
| R37 | 1500Ω | | | |
| R38 | 100K | | | |
| R39 | 1meg | | | |
| R40 | 100K | | | |
| R41 | 100K 1W | | | |
| R42 | 1500Ω | | | |
| R43 | 22K | | | |
| R44 | 220K | | | |
| R45 | 220K 1W | | | |
| R46 | 680Ω | | | |
| R47 | 15K | | | |
| R48 | 220K | | | |
| R49 | 2.2meg | | | |
| R50 | 220K 1W | | | |
| R51 | 1500Ω | | | |
| R52 | 270K | | | |
| R53 | 2200Ω | | | |
| R54 | 1000Ω | | | |
| R55 | 220K | | | |
| R56 | 1000Ω | | | |
| R57 | 220K | | | |
| R58 | 150K | | | |
| R59 | 150K | | | |
| R60 | 18Ω | | | |
| R61 | 100K | | | |
| R62 | 100K | | | |
| R63 | 10K | | | |
| R64 | 47K | | | |
| R65 | 270K | | | |
| R66 | 2700Ω | | | |
| R67 | 2.2meg | | | |
| R68 | 270K | | | |
| R69 | 2700Ω | | | |

| ITEM No. | RATING | REPLACEMENT DATA | | |
|---|---|---|---|---|
| | | IRC PART No. | WORKMAN TV PART No. | REMARKS |
| R70 | 82K | | | |
| R71 | 560K | | | |
| R72 | 100K | | | |
| R73 | 10meg | | | |
| R74 | 5.6meg | | | |
| R75 | 4.7meg | | | |
| R76 | 100K | | | |
| R77 | 150K | | | |
| R78 | 1meg | | | |
| R79 | 470K | | | |
| R80 | 3.9meg | | | |
| R81 | 10meg | | | |
| R82 | 2.2meg | | | |
| R83 | 2.2meg | | | |
| R84 | 100K 1W | | | |
| R85 | 1500Ω | | | |
| R86 | 100K | | | |
| R87 | 1meg | | | |
| R88 | 100K | | | |
| R89 | 100K 1W | | | |
| R90 | 1500Ω | | | |
| R91 | 22K | | | |
| R92 | 220K | | | |
| R93 | 220K 1W | | | |
| R94 | 680Ω | | | |
| R95 | 15K | | | |
| R96 | 2.2meg | | | |
| R97 | 220K 1W | | | |
| R98 | 1500Ω | | | |
| R99 | 220K | | | |
| R100 | 270K | | | |
| R101 | 2200Ω | | | |
| R102 | 1000Ω | | | |
| R103 | 220K | | | |
| R104 | 1000Ω | | | |
| R105 | 220K | | | |
| R106 | 150K | | | |
| R107 | 150K | | | |
| R108 | 18Ω | | | |
| R109 | 1800Ω | | | |
| R110 | 18K | | | |
| R111 | 18K | | | |
| R112 | 15K | | | |
| R113 | 15K | | | |
| R114 | 15K | | | |
| R115 | 56K 1W | | | |
| R116 | 47K 1W | | | |
| R117 | 22K 2W | | | |
| R118 | 3300Ω 1W | | | |
| R119 | 12K 20W | | | |
| R120 | 1200Ω 10W | | | |
| R121 | 80Ω 20W | | | |
| R122 | 8200Ω | | | |
| R123 | 18Ω 1W | | | |
| R124 | 18Ω 1W | | | |
| R125 | 18Ω 1W | | | |
| R126 | 10Ω 2W | | | |
| R127 | 3.3Ω 1W | | | |
| R128 | 3.3Ω 1W | | | |

## TRANSFORMER (POWER)

| ITEM No. | RATING | | | REPLACEMENT DATA | | | | | NOTES |
|---|---|---|---|---|---|---|---|---|---|
| | PRI. | SEC. 1 | SEC. 2 | H.H. Scott PART No. | Merit PART No. | Stancor PART No. | Thordarson PART No. | Triad PART No. | |
| T1 | 117V@ 1.1A | 700VCT @.140A DC | 5V@ 1.9A | TR-12-3-1 | | | | | |
| | SEC. 3 | SEC. 4 | SEC. 5 | | | | | | |
| | 6.3V@ 3.9A | 48V@ .210A AC | | | | | | | |

## TRANSFORMER (AUDIO OUTPUT)

| ITEM No. | IMPEDANCE | | REPLACEMENT DATA | | | | | NOTES |
|---|---|---|---|---|---|---|---|---|
| | PRI. | SEC. | H.H. Scott PART No. | Merit PART No. | Stancor PART No. | Thordarson PART No. | Triad PART No. | |
| T2 | 2600Ω CT | 16Ω Tap@ 8Ω, 4Ω | TRA8-5 | | | | | |
| T3 | 2600Ω CT | 16Ω Tap@ 8Ω, 4Ω | TRA8-5 | | | | | |

## POWER RECTIFIERS

| ITEM No. | RATING | REPLACEMENT DATA | | | NOTES |
|---|---|---|---|---|---|
| | CURRENT (Measured) | H.H. Scott PART No. | RCA PART No. | SARKES TARZIAN PART No. | |
| M1 | .150A | B60C200 ♦ | 1N1763 * | F6 * | ♦ Selenium, Bridge * Silicon (4 Req'd.) |

## FUSES

| ITEM No. | TYPE | RATING | REPLACEMENT DATA | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | H.H. Scott PART No. | | LITTELFUSE PART No. | | BUSS PART No. | |
| | | | FUSE | HOLDER | FUSE | HOLDER | FUSE | HOLDER |
| M2 | 3AG | 2½A 125V S/B | | | 31302.5 (3AG 2½A 125V) S/B | 342001 | MDL 2½ | HKP |

## MISCELLANEOUS

| ITEM No. | PART NAME | H.H. Scott PART No. | NOTES |
|---|---|---|---|
| M3 | Switch | | Input Selector (Rotary Wafer Type) |
| M4 | Switch | | Stereo Selector (Rotary Wafer Type) |
| M5 | Switch | | Pick-up (6PDT Slide Type) |
| M6 | Switch | | Tape Monitor (DPDT Slide Type) |
| M7 | Switch | | Rumble Filter (DPDT Slide Type) |
| M8 | Switch | | Scratch Filter (DPDT Slide Type) |
| M9 | Switch | | Loudness-Volume (DPDT Slide Type) |
| M10 | Switch | | Phase, Reverse-Normal (DPDT Slide Type) |

## WIRING DATA

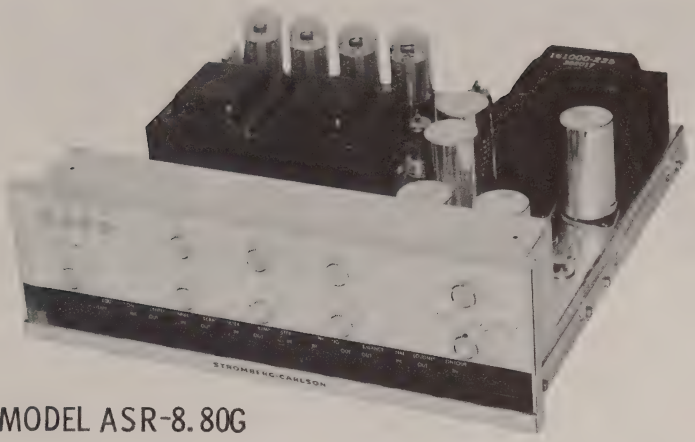
General-use Unshielded Hook-up Wire ..... Use BELDEN No. 8530 (Solid) Available in Ten Colors
8524 (Stranded) Available in Ten Colors

Power Cord ..... Use BELDEN No. 1765-B (6 Ft. Length)
1725-K (7½ Ft. Length)

PHOTOFACT® Folder

# STROMBERG-CARLSON MODELS ASE-8, ASP-80, ASR-8.80G

STROMBERG-CARLSON MODELS
ASE-8, ASP-80, ASR-8.80G




MODEL ASR-8.80G

STROMBERG-CARLSON MODELS
ASE-8, ASP-80, ASR-8.80G

| | |
|---|---|
| TRADE NAME | Stromberg-Carlson Model ASE-8 (Preamplifier), ASP-80 (Amplifier), ASR-8.80G (Combined Preamplifier and Amplifier) |
| MANUFACTURER | Stromberg-Carlson Co., A Div. of General Dynamics Corp., Commercial Products Div., 1400 N. Goodman Street, Rochester 9, N. Y. |
| TYPE SET | AC Operated 4 Tube Stereo Preamplifier and 6 Tube Stereo Amplifier |
| POWER SUPPLY | 110 — 120 Volts AC, 60 Cycles RATING 120 Watts, 1.25 Amp. @117 Volts AC |

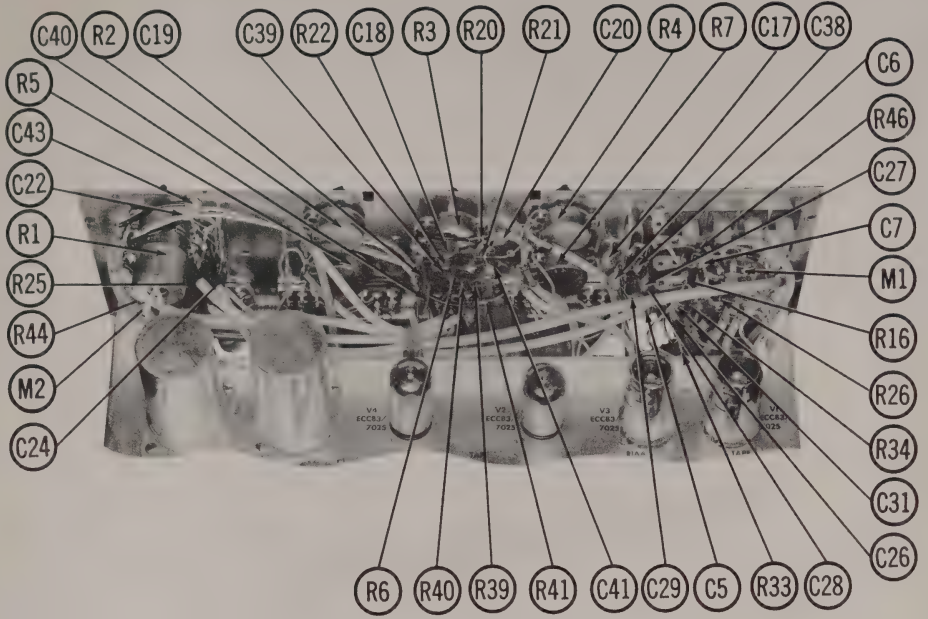
HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana

The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of KV785

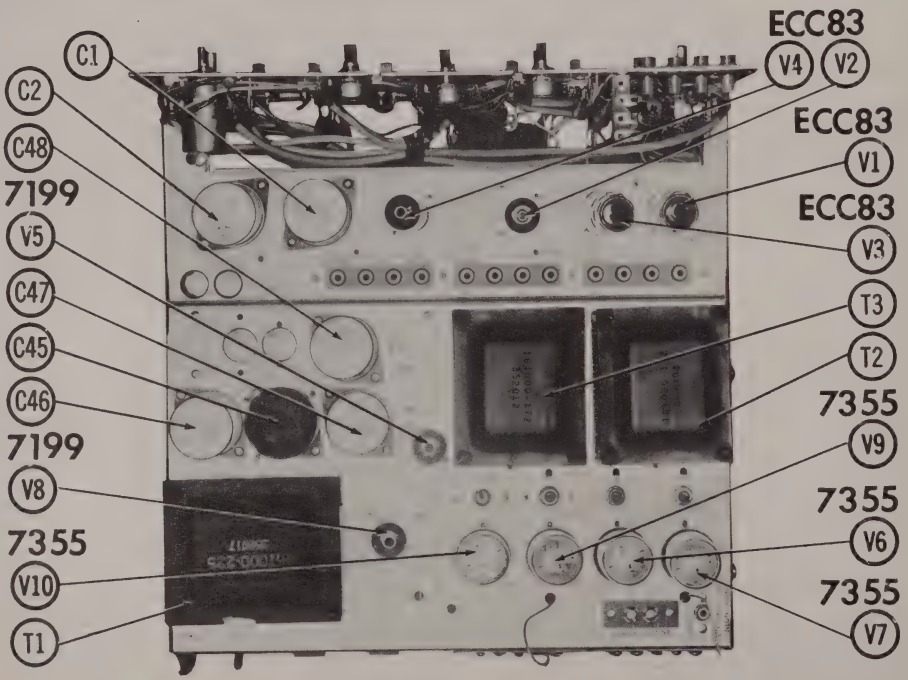
the particular type of replacement part listed. Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. © 1961 Howard W. Sams & Co., Inc., Indianapolis 6, Indiana. Printed in U.S. of America



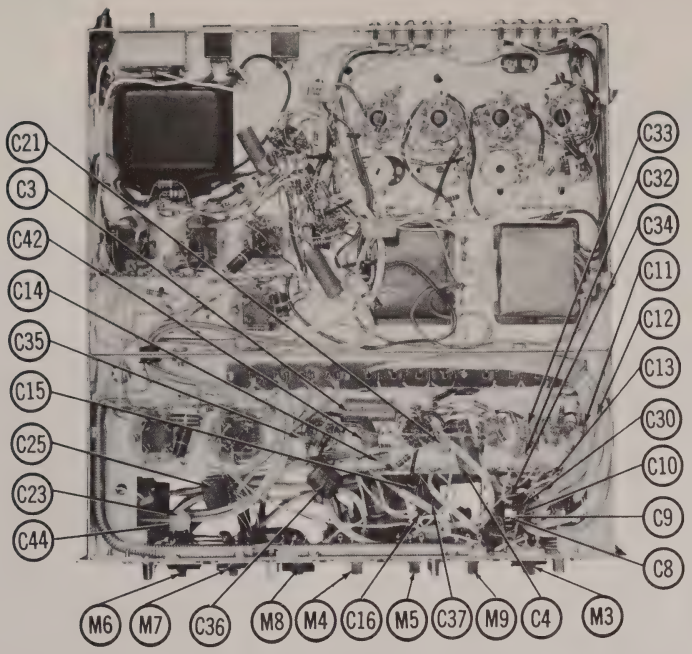
SET 557 FOLDER 12



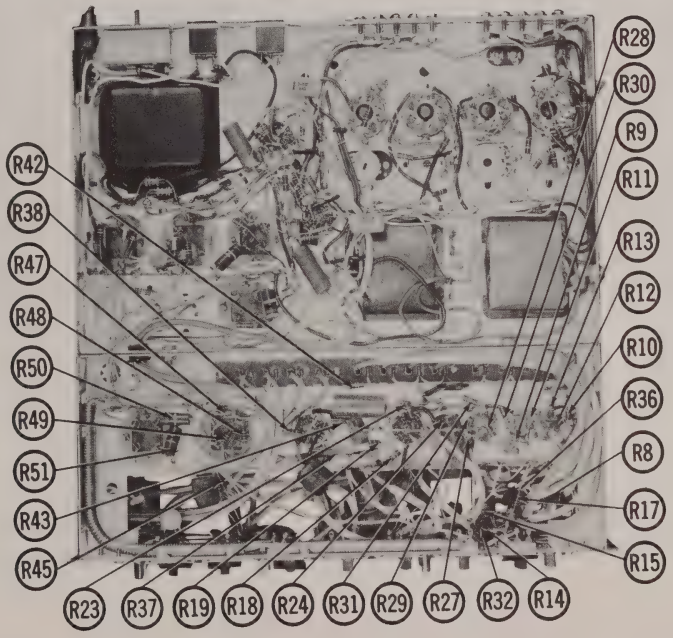

CONTROL PANEL-REAR VIEW



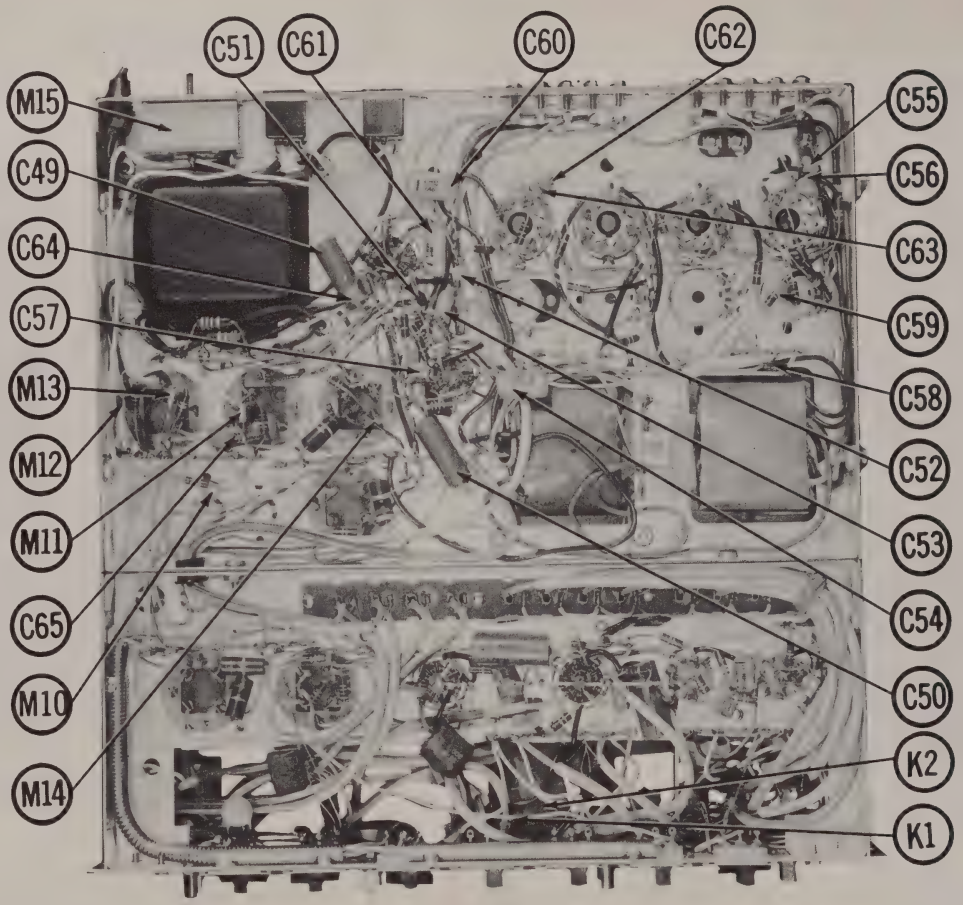

CHASSIS-TOP VIEW



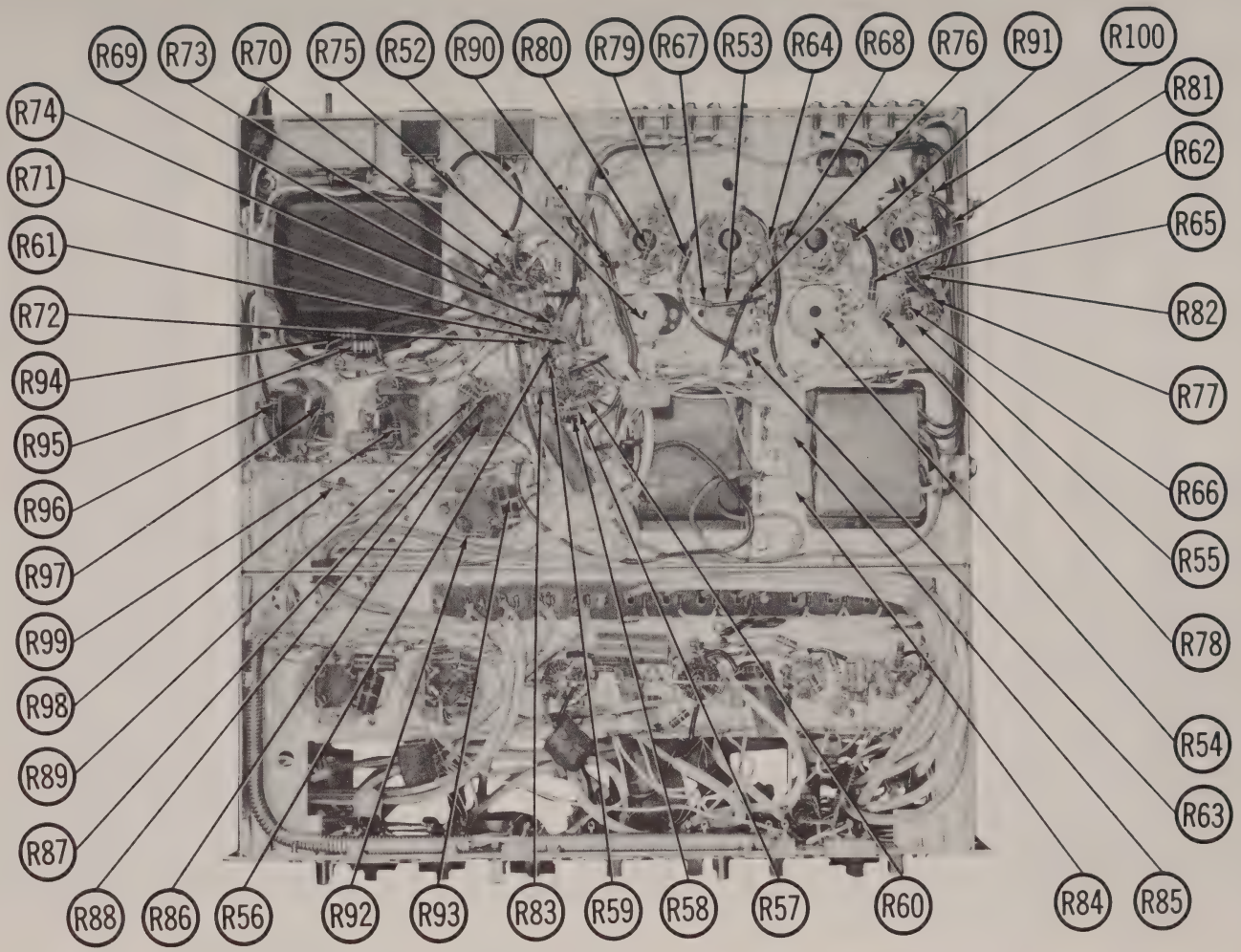

CHASSIS BOTTOM VIEW-PREAMP, CAPACITOR & MISC. IDENT.




CHASSIS BOTTOM VIEW-PREAMP, RESISTOR IDENT.




CHASSIS BOTTOM VIEW-AMP, CAPACITOR & MISC. IDENT.




CHASSIS BOTTOM VIEW-AMP, RESISTOR IDENT.

## BIAS AND BALANCE ADJUSTMENT

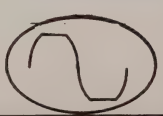
To properly make these adjustments, the following equipment is required.

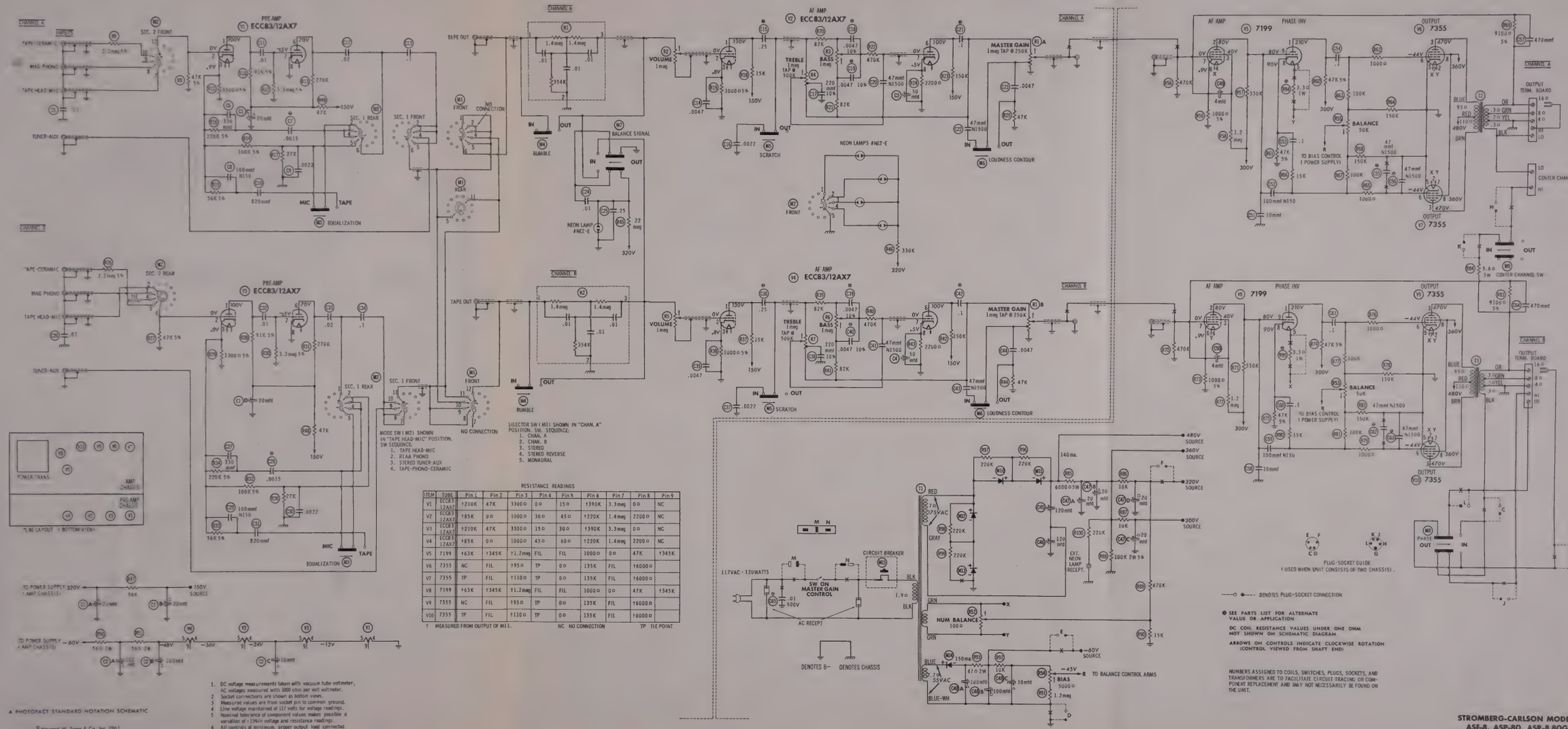
a. Two DC Milliammeters (0-100 ma).
b. Audio-oscillator, sine-wave.
c. Oscilloscope with linear sweep.
d. Resistive load, 8 or 16 ohms, 50 watts non-inductive.

Procedure:

1. Connect one lead of the load to the OUTPUT A LO terminal of the amplifier. Connect the other lead to 8 for 8 ohm load; or 16 for 16 ohm load.
2. With the power turned off, connect the milliammeters in the plate circuits of the Channel A output tubes. This may be accomplished by connecting across pins 3 and 4 of the tube sockets and unsoldering the jumper wire between pins 3 and 4.
3. Turn on the amplifier and allow 5 minute warm up. Adjust the Channel A Balance control so that the two milliammeters read the same.
4. Adjust the Bias control so that both meters read approximately 34ma.
5. Connect the Audio-oscillator to the TUNER AUX. A input of the amplifier. Set the Audio-oscillator for 100 cycles. Operate the controls as follows: PROGRAM SELECTOR to AUX, BASS and TREBLE to center of rotation, VOLUME fully clockwise, CHANNEL SELECTOR to STEREO, all slide switches to the left and MASTER GAIN CONTROL to 8.
6. Connect the scope across the output load and observe the waveform. Increase the output level of the Audio-oscillator until the sinewave begins to appear clipped or flattens out as in Fig. 1.
7. Adjust the Channel A BALANCE control until the clipping is symmetrical as in Fig. 2.
8. Remove the signal and check the milliammeters. If either meter reads more than 37ma, readjust the BIAS control so that the meter reads 37ma.
9. Disconnect the power and meters. Restore the jumpers on pins 3 and 4 of Channel A Output tube sockets.
10. Connect the meters in the plate circuit of the Channel B Output tubes as outlined in step 2.
11. Connect the resistive load and the scope to the OUTPUT B terminals as in step 1. Connect the power. Connect the Audio-oscillator to TUNER AUX B and set for 100 cycles.
12. Observe the waveform and adjust the output of the audio-oscillator until the sinewave just begins to clip. Adjust the Channel B BALANCE control until the clipping is symmetrical.
13. Remove the signal and check the meters for a maximum reading of 37ma. Readjust the Bias control if necessary so that the maximum reading does not exceed 37ma. on either meter.
14. Restore the jumpers on pins 3 and 4 of the channel B Output tube sockets.

FIG. 1

FIG. 2 




| ITEM | TUBE | Pin 1 | Pin 2 | Pin 3 | Pin 4 | Pin 5 | Pin 6 | Pin 7 | Pin 8 | Pin 9 |
|---|---|---|---|---|---|---|---|---|---|---|
| V1 | ECC83 / 12AX7 | †210K | 47K | 3300Ω | 0Ω | 15Ω | †390K | 3.3meg | 0Ω | NC |
| V2 | ECC83 / 12AX7 | †85K | 0Ω | 1000Ω | 30Ω | 45Ω | †220K | 1.4meg | 2200Ω | NC |
| V3 | ECC83 / 12AX7 | †210K | 47K | 3300Ω | 15Ω | 30Ω | †390K | 3.3meg | 0Ω | NC |
| V4 | ECC83 / 12AX7 | †85K | 0Ω | 1000Ω | 45Ω | 60Ω | †220K | 1.4meg | 2200Ω | NC |
| V5 | 7199 | †63K | †345K | †1.2meg | FIL | FIL | 1000Ω | 0Ω | 47K | †345K |
| V6 | 7355 | NC | FIL | †95Ω | TP | 0Ω | 135K | FIL | †6000Ω | |
| V7 | 7355 | TP | FIL | †110Ω | TP | 0Ω | 135K | FIL | †6000Ω | |
| V8 | 7199 | †63K | †345K | †1.2meg | FIL | FIL | 1000Ω | 0Ω | 47K | †345K |
| V9 | 7355 | NC | FIL | †95Ω | TP | 0Ω | 135K | FIL | †6000Ω | |
| V10 | 7355 | TP | FIL | †110Ω | TP | 0Ω | 135K | FIL | †6000Ω | |

† MEASURED FROM OUTPUT OF M11. NC NO CONNECTION TP TIE POINT

1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured with 1000 ohm per volt voltmeter.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common ground.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance of component values makes possible a variation of ±15% in voltage and resistance readings.
6. All controls at minimum, proper output load connected.

● SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION.

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM.

ARROWS ON CONTROLS INDICATE CLOCKWISE ROTATION (CONTROL VIEWED FROM SHAFT END)

NUMBERS ASSIGNED TO COILS, SWITCHES, PLUGS, SOCKETS, AND TRANSFORMERS ARE TO FACILITATE CIRCUIT TRACING OR COMPONENT REPLACEMENT AND MAY NOT NECESSARILY BE FOUND ON THE UNIT.

A PHOTOFACT STANDARD NOTATION SCHEMATIC

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**STROMBERG-CARLSON MODELS ASE-8, ASP-80, ASR-8.80G**

# PREAMP PARTS LIST AND DESCRIPTIONS

## TUBES

| ITEM No. | USE | TYPE | ITEM No. | USE | TYPE |
|---|---|---|---|---|---|
| V1 | Channel A Preamp. | ECC83/12AX7 (7025)* | V3 | Channel B Preamp. | ECC83/12AX7 (7025)* |
| V2 | Channel A AF Amp. | ECC83/12AX7 (7025)* | V4 | Channel B AF Amp. | ECC83/12AX7 (7025)* |

* Alternate

## ELECTROLYTIC CAPACITORS

| ITEM No. | RATING CAP. | RATING VOLT. | REPLACEMENT DATA Stromberg-Carlson PART No. | AEROVOX PART No. | CORNELL-DUBILIER PART No. | GENERAL ELECTRIC PART No. | MALLORY PART No. | PYRAMID PART No. | SPRAGUE PART No. |
|---|---|---|---|---|---|---|---|---|---|
| C1A | ▰20 | 450 | 111000-028 | AFH3-36 | | XC4-49 | FP376.5 | TMQ-4616 | |
| B | ▪20 | 450 | | PRS1735 | | | TC75 | | |
| C | ▲20 | 450 | | | | | | | |
| D | 20 | 450 | | | | | | | |
| C2A | ▰100 | 75 | 111000-081 | | | | | | TVLPS-3360* |
| B | ▪100 | 75 | | | | | | | |
| C | ▲10 | 75 | | | | | | | |
| C3 | 50 | 6 | 111615-000 | PRS1265 | BBR50-6 | QT1-15 | TC29 | TD-50-6 | TVA-1100 |
| C4 | 50 | 6 | 111615-000 | PRS1265 | BBR50-6 | QT1-15 | TC29 | TD-50-6 | TVA-1100 |

* Not normally in distributor's stock. Available thru distributor on order to manufacturer.

## FIXED CAPACITORS

**Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.**

| ITEM No. | RATING | REMARKS | REPLACEMENT DATA AEROVOX PART No. | CENTRALAB PART No. | CORNELL-DUBILIER PART No. | ELMENCO PART No. | MALLORY PART No. | SPRAGUE PART No. |
|---|---|---|---|---|---|---|---|---|
| C5 | .01 | | BPD-01 | DD-103 | BYA10S1 | CCD-103 | B-110 | 5HK-S10 |
| C6 | 330 | | DI-330 | DD-331 | L10T33 | CCD-331 | B-333 | 10TS-T33 |
| C7 | .0015 | Note 3 | BPD-0015 | DD-152 | BYA10D15 | CCD-152 | B-215 | 5HK-D15 |
| C8 | 100 N150 | #552076-101 | | | | * | | 10TCP-T10 |
| C9 | .0022 | | BPD-0022 | DD-222 | BYA10D22 | CCD-222 | B-222 | 5HK-D22 |
| C10 | 820 | | DI-820 | DD-821 | BYA10T82 | CCD-821 | B-382 | 10TS-T82 |
| C11 | .01 400V | | P488N-01 | D6-103 | CUB4S1 | 4DP-1-103 | GEM-411 | 4TM-S10 |
| C12 | .02 400V | | P488N-02 | DD-203 | CUB4S2 | 4DP-2-203 | GEM-412 | 4TM-S20 |
| C13 | .1 400V | | P488N-1 | DF-104 | CUB4P1 | 4DP-1-103 | GEM-401 | 4TM-P10 |
| C14 | .0047 | | BPD-0047 | DD-472 | BYA10D47M | CCD-472 | B-247 | 5HK-D47 |
| C15 | .25 200V | Note 1 | P288N-25 | | CUB2P25 | 2DP-4-254 | GEM-2025 | 2TM-P25 |
| C16 | .0022 | | BPD-0022 | DD-222 | BYA10D22 | CCD-222 | B-222 | 5HK-D22 |
| C17 | 220 10% | | DI-220 | DD-221 | L10T22 | CCD-221 | GP322 | 10TS-T22 |
| C18 | .0047 10% | Note 4 | DI-4700 | | PM6D47 | CCD-472 | JL-247 | 10TS-D47 |
| C19 | .0047 10% | Note 4 | DI-4700 | | PM6D47 | CCD-472 | JL-247 | 10TS-D47 |
| C20 | 47 N1500 | #552076-470 | | TCL-47 | | * | | |
| C21 | .1 200V | Note 2 | P288N-1 | DF-104 | CUB2P1 | 2DP-3-104 | GEM-201 | 2TM-P10 |
| C22 | 47 N1500 | #552076-470 | | TCL-47 | | * | | |
| C23 | .0047 | | BPD-0047 | DD-472 | BYA10D47M | CCD-472 | B-247 | 5HK-D47 |
| C24 | .01 | | BPD-01 | DD-103 | BYA10S1 | CCD-103 | B-110 | 5HK-S10 |
| C25 | .25 200V | | P288N-25 | | CUB2P25 | 2DP-4-254 | GEM-2025 | 2TM-P25 |
| C26 | .01 | | BPD-01 | DD-103 | BYA10S1 | CCD-103 | B-110 | 5HK-S10 |
| C27 | 330 | | DI-330 | DD-331 | L10T33 | CCD-331 | B-333 | 10TS-T33 |
| C28 | .0015 | Note 3 | BPD-0015 | DD-152 | BYA10D15 | CCD-152 | B-215 | 5HK-D15 |
| C29 | 100 N150 | #552076-101 | | | | * | | 10TCP-T10 |
| C30 | .0022 | | BPD-0022 | DD-222 | BYA10D22 | CCD-222 | B-222 | 5HK-D22 |
| C31 | 820 | | DI-820 | DD-821 | BYA10T82 | CCD-821 | B-382 | 10TS-T82 |
| C32 | .01 400V | | P488N-01 | D6-103 | CUB4S1 | 4DP-1-103 | GEM-411 | 4TM-S10 |

## FIXED CAPACITORS (cont)

| ITEM No. | RATING | REMARKS | REPLACEMENT DATA AEROVOX PART No. | CENTRALAB PART No. | CORNELL-DUBILIER PART No. | ELMENCO PART No. | MALLORY PART No. | SPRAGUE PART No. |
|---|---|---|---|---|---|---|---|---|
| C33 | .02 400V | | P488N-02 | DD-203 | CUB4S2 | 4DP-2-203 | GEM-412 | 4TM-S20 |
| C34 | .1 400V | | P488N-1 | DF-104 | CUB4P1 | 4DP-3-104 | GEM-401 | 4TM-P10 |
| C35 | .0047 | | BPD-0047 | DD-472 | BYA10D47M | CCD-472 | B-247 | 5HK-D47 |
| C36 | .25 200V | Note 1 | P288N-25 | | CUB2P25 | 2DP-4-254 | GEM-2025 | 2TM-P25 |
| C37 | .0022 | | BPD-0022 | DD-222 | BYA10D22 | CCD-222 | B-222 | 5HK-D22 |
| C38 | 220 10% | | DI-220 | DD-221 | L10T22 | CCD-221 | GP322 | 10TS-T22 |
| C39 | .0047 10% | Note 4 | DI-4700 | | PM6D47 | CCD-472 | JL-247 | 10TS-D47 |
| C40 | .0047 10% | Note 4 | DI-4700 | | PM6D47 | CCD-472 | JL-247 | 10TS-D47 |
| C41 | 47 N1500 | #552076-470 | | TCL-47 | | * | | |
| C42 | .1 200V | Note 2 | P288N-1 | DF-104 | CUB2P1 | 2DP-3-104 | GEM-201 | 2TM-P10 |
| C43 | 47 N1500 | #552076-470 | | TCL-47 | | * | | |
| C44 | .0047 | | BPD-0047 | DD-472 | BYA10D47M | CCD-472 | B-247 | 5HK-D47 |

* Not normally in distributor's stock. Available thru distributor on order to manufacturer.
\# Stromberg-Carlson Part Number.
Note 1. Some versions of Model ASR-8.80G may use .22mfd in this application.
Note 2. Some versions of Model ASR-8.80G may use 400V unit in this application.
Note 3. Not used in later versions of Model ASR-8.80G.
Note 4. Value changes to .01mfd when cable is used to connect the chassis.

## CONTROLS

| ITEM No. | RATING RESISTANCE | RATING WATTS | REPLACEMENT DATA Stromberg-Carlson PART No. | CENTRALAB PART No. | CLAROSTAT PART No. | CTS-IRC PART No. | MALLORY PART No. | INSTALLATION NOTES |
|---|---|---|---|---|---|---|---|---|
| R1A | 1meg | ½ | 145000-023 | | | | | Master Gain, Channel A |
| | 250K Tap | | | | | | | |
| B | 1meg | ½ | | | | | | Master Gain, Channel B |
| | 250K Tap | | | | | | | |
| C | Switch | | | | | | | |
| R2A | 1meg | ½ | 145000-072 | B-70 | A47-1meg-Z | Q13-137 | U53 | Volume, Channel A |
| B | Shaft | | | Not Req. | FS-3 | Not Req. | Not Req. | |
| R3A | 1meg | ½ | 145000-090 | BT-71 | A47F5-1meg | Q19-137X | UT-443 | Bass, Channel A |
| | 500K Tap | | | | | | | Not Used |
| B | Shaft | | | Not Req. | FS-3 | Not Req. | Not Req. | |
| R4A | 1meg | ½ | 145000-090 | BT-71 | A47F5-1meg | Q19-137X | UT-443 | Treble, Channel A |
| | 500K Tap | | | | | | | |
| B | Shaft | | | Not Req. | FS-3 | Not Req. | Not Req. | |
| R5A | 1meg | ½ | 145000-072 | B-70 | A47-1meg-Z | Q13-137 | U53 | Volume, Channel B |
| B | Shaft | | | Not Req. | FS-3 | Not Req. | Not Req. | |
| R6A | 1meg | ½ | 145000-090 | BT-71 | A47F5-1meg | Q19-137X | UT-443 | Bass, Channel B |
| | 500K Tap | | | | | | | Not Used |
| B | Shaft | | | Not Req. | FS-3 | Not Req. | Not Req. | |
| R7A | 1meg | ½ | 145000-090 | BT-71 | A47F5-1meg | Q19-137X | UT-443 | Treble, Channel B |
| | 500K Tap | | | | | | | |
| B | Shaft | | | Not Req. | FS-3 | Not Req. | Not Req. | |

# PREAMP PARTS LIST (Continued)

## RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

| ITEM No. | RATING | REPLACEMENT DATA | | |
|---|---|---|---|---|
| | | IRC PART No. | WORKMAN TV PART No. | REMARKS |
| R8 | 2.2meg 5% | | | |
| R9 | 47K 5% | | | |
| R10 | 91K 5% | | | |
| R11 | 3300Ω 5% | | | |
| R12 | 3.3meg 5% | | | |
| R13 | 270K | | | |
| R14 | 100K 5% | | | |
| R15 | 56K 5% | | | |
| R16 | 220K 5% | | | |
| R17 | 27K | | | |
| R18 | 15K | | | |
| R19 | 1000Ω 5% | | | |
| R20 | 82K | | | |
| R21 | 82K | | | |
| R22 | 470K | | | |
| R23 | 150K | | | |
| R24 | 2200Ω | | | |
| R25 | 47K | | | |
| R26 | 2.2meg 5% | | | |
| R27 | 47K 5% | | | |
| R28 | 91K 5% | | | |
| R29 | 3300Ω 5% | | | |

| ITEM No. | RATING | REPLACEMENT DATA | | |
|---|---|---|---|---|
| | | IRC PART No. | WORKMAN TV PART No. | REMARKS |
| R30 | 3.3meg 5% | | | |
| R31 | 270K | | | |
| R32 | 100K 5% | | | |
| R33 | 56K 5% | | | |
| R34 | 220K 5% | | | |
| R35 | 56K | | | |
| R36 | 27K | | | |
| R37 | 15K | | | |
| R38 | 1000Ω 5% | | | |
| R39 | 82K | | | |
| R40 | 470K | | | |
| R41 | 82K | | | |
| R42 | 150K | | | |
| R43 | 2200Ω | | | |
| R44 | 47K | | | |
| R45 | 22meg | | | |
| R46 | 330K | | | |
| R47 | 56K | | | |
| R48 | 47K | | | |
| R49 | 47K | | | |
| R50 | 56Ω 2W | | | |
| R51 | 56Ω 2W | | | |

## COMPONENT COMBINATIONS

| ITEM No. | USE | DESCRIPTION | Stromberg-Carlson PART No. | REPLACEMENT DATA |
|---|---|---|---|---|
| K1 | Rumble Filter Comp. | .01mfd, .01mfd, .01mfd, 354K, 1.4meg, 1.4meg | 179000-034 | Centralab PC-402 |
| K2 | Rumble Filter Comp. | .01mfd, .01mfd, .01mfd, 354K, 1.4meg, 1.4meg | 179000-034 | Centralab PC-402 |

## MISCELLANEOUS

| ITEM No. | PART NAME | Stromberg-Carlson PART No. | NOTES |
|---|---|---|---|
| M1 | Switch | 158000-152 | Function Selector (Rotary Wafer Type) |
| M2 | Switch | 158000-151 | Mode Selector (Rotary Wafer Type) |
| M3 | Switch | 158000-058 | Equalization (DPDT, Slide Type) |
| M4 | Switch | 158000-058 | Rumble Filter (DPDT, Slide Type) |
| M5 | Switch | 158000-058 | Scratch Filter (DPDT, Slide Type) |
| M6 | Switch | 158000-058 | Loudness Contour (DPDT, Slide Type) |
| M7 | Switch | 158000-058 | Balance Signal (DPDT, Slide Type) |
| M8 | Switch | 158000-058 | Phase (DPDT, Slide Type) |
| M9 | Switch | 158000-058 | Center Channel (DPDT, Slide Type) |

## WIRING DATA

General-use Unshielded Hook-up Wire .....Use BELDEN No. 8530 (Solid) Available in Ten Colors
8524 (Stranded) Available in Ten Colors

# AMP PARTS LIST AND DESCRIPTIONS

## TUBES

| ITEM No. | USE | TYPE (GENERAL ELECTRIC • RAYTHEON • SYLVANIA) |
|---|---|---|
| V5 | Channel A AF Amp. - Phase Inverter | 7199 |
| V6 | Channel A Output | 7355 |
| V7 | Channel A Output | 7355 |
| V8 | Channel B AF Amp. - Phase Inverter | 7199 |
| V9 | Channel B Output | 7355 |
| V10 | Channel B Output | 7355 |

## ELECTROLYTIC CAPACITORS

| ITEM No. | RATING | | REPLACEMENT DATA | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | CAP. | VOLT. | Stromberg-Carlson PART No. | AEROVOX PART No. | CORNELL-DUBILIER PART No. | GENERAL ELECTRIC PART No. | MALLORY PART No. | PYRAMID PART No. | SPRAGUE PART No. |
| C45 | 120 | 300 | 111000-083 | AFHSI-36-05 | | XC1-21 | FP149, TC78 | | |
| C46 | 120 | 300 | 111000-082 | AFHSI-36-05 | | XC1-21 | FP149, TC78 | | |
| C47A | 20 | 450 | 111000-028 | AFH3-36 | | XC4-49 | FP376.5 | TMQ-4616 | |
| B | ▲20 | 450 | | PRSI735 | | | TC75 | | |
| C | ▲20 | 450 | | | | | | | |
| D | ■20 | 450 | | | | | | | |
| C48A | ▲100 | 75 | 111000-081 | | | | | | TVLPS-3360* |
| B | ■100 | 75 | | | | | | | |
| C | ▲10 | 75 | | | | | | | |
| C49 | 4 | 150 | 111000-050 | PRSI400 | BBR4-150 | QT1-2 | TT150X4 | TD-4-150 | TVA-1402 |
| C50 | 4 | 150 | 111000-050 | PRSI400 | BBR4-150 | QT1-2 | TT150X4 | TD-4-150 | TVA-1402 |

* Not normally in distributor's stock. Available thru distributor on order to manufacturer.

## FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

| ITEM No. | RATING | REMARKS | REPLACEMENT DATA | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | AEROVOX PART No. | CENTRALAB PART No. | CORNELL-DUBILIER PART No. | ELMENCO PART No. | MALLORY PART No. | SPRAGUE PART No. |
| C51 | 10 | | DI-10 | DD-100 | L10Q1 | CCD-100 | GP410 | 10TS-Q10 |
| C52 | 100 N150 | #552076-101 | | | | * | | 10TCP-T10 |
| C53 | .1 400V | | P488N-1 | DF-104 | CUB4P1 | 4DP-3-104 | GEM-401 | 4TM-P10 |
| C54 | .1 400V | | P488N-1 | DF-104 | CUB4P1 | 4DP-3-104 | GEM-401 | 4TM-P10 |
| C55 | 47 N1500 | Note 1 | | TCL-47 | | * | | |
| C56 | 47 N1500 | Note 2 | | TCL-47 | | * | | |
| C57 | 470 | | DI-470 | DD-471 | BYA10T47 | CCD-471 | B-347 | 10TS-T47 |
| C58 | 10 | | DI-10 | DD-100 | L10Q1 | CCD-100 | GP410 | 10TS-Q10 |
| C59 | 100 N150 | #552076-101 | | | | * | | 10TCP-T10 |
| C60 | .1 400V | | P488N-1 | DF-104 | CUB4P1 | 4DP-3-104 | GEM-401 | 4TM-P10 |
| C61 | .1 400V | | P488N-1 | DF-104 | CUB4P1 | 4DP-3-104 | GEM-401 | 4TM-P10 |
| C62 | 47 N1500 | Note 1 | | TCL-47 | | * | | |
| C63 | 47 N1500 | Note 2 | | TCL-47 | | * | | |
| C64 | 470 | | DI-470 | DD-471 | BYA10T47 | CCD-471 | B-347 | 10TS-T47 |
| C65 | .01 600V | | P688N-01 | D6-103 | CUB6S1 | 6DP-2-103 | GEM-611 | 6TM-S10 |

Note 1. Not used in some versions.
Note 2. Some versions use 82mmf in this application (Part No. 557076-820).
* Not normally in distributor's stock. Available thru distributor on order to manufacturer.
# Stromberg-Carlson Part Number.

# AMP PARTS LIST AND DESCRIPTIONS (Continued)

## CONTROLS

| ITEM No. | RATING | | REPLACEMENT DATA | | | | | INSTALLATION NOTES |
|---|---|---|---|---|---|---|---|---|
| | RESISTANCE | WATTS | Stromberg-Carlson PART No. | CENTRALAB PART No. | CLAROSTAT PART No. | CTS-IRC PART No. | MALLORY PART No. | |
| R52A | 100Ω | 2(WW) | 173853-000 | WN-101 | A43-100 | W11-084 | FL100P | Hum Balance |
| B | Shaft | | | Not Req. | FKS-1/4 | SK5 | Not Req. | |
| R53A | 50K | ½ | 145000-096 | AB-31 | A47-50K-S | QU-123 | SU-35 | Balance, Channel B |
| B | Shaft | | | AK-1 | FKS-1/4 | Not Req. | Not Req. | |
| R54A | 5000Ω | ½ | 145000-095 | AB-10 | A47-5000-S | QU-114 | SU-14 | Bias |
| B | Shaft | | | AK-1 | FKS-1/4 | Not Req. | Not Req. | |
| R55A | 50K | ½ | 145000-096 | AB-31 | A47-50K-S | QU-123 | SU-35 | Balance, Channel A |
| B | Shaft | | | AK-1 | FKS-1/4 | Not Req. | Not Req. | |

## RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

| ITEM No. | RATING | REPLACEMENT DATA | | |
|---|---|---|---|---|
| | | IRC PART No. | WORKMAN TV PART No. | REMARKS |
| R56 | 470K | | | |
| R57 | 330K | | | |
| R58 | 1.2meg | | | |
| R59 | 1000Ω 5% | | | |
| R60 | 47K 5% | | | |
| R61 | 47K 5% | | | |
| R62 | 1000Ω | | | |
| R63 | 100K | | | |
| R64 | 150K | | | |
| R65 | 1000Ω | | | |
| R66 | 15K | | | |
| R67 | 100K | | | |
| R68 | 150K | | | |
| R69 | 9100Ω 5% | | | |
| R70 | 470K | | | |
| R71 | 330K | | | |
| R72 | 1.2meg | | | |
| R73 | 1000Ω 5% | | | |
| R74 | 47K 5% | | | |
| R75 | 47K 5% | | | |
| R76 | 1000Ω | | | |
| R77 | 100K | | | |
| R78 | 150K | | | |

| ITEM No. | RATING | REPLACEMENT DATA | | |
|---|---|---|---|---|
| | | IRC PART No. | WORKMAN TV PART No. | REMARKS |
| R79 | 1000Ω | | | |
| R80 | 15K | | | |
| R81 | 100K | | | |
| R82 | 150K | | | |
| R83 | 9100Ω 5% | | | |
| R84 | 5.6Ω 5W | PW5-5.6 | 5W-SQ-5.6 | |
| R85 | 6000Ω 5W | PW5-6000 | 7W-SQ-6000 | |
| R86 | 10K | | | |
| R87 | 10K | | | |
| R88 | 100K 2W 5% | | | |
| R89 | 470K | | | |
| R90 | 15K | | | |
| R91 | 1.2meg | | | |
| R92 | 10K | | | |
| R93 | 47Ω 2W | | | |
| R94 | 3.3Ω 1W | | | Note 1 |
| R95 | 3.3Ω 1W | | | Note 1 |
| R96 | 220K | | | |
| R97 | 220K | | | |
| R98 | 220K | | | |
| R99 | 220K | | | |
| R100 | 220K | | | |

Note 1. Not used in later versions of Model ASR-8.80G.

## TRANSFORMER (POWER)

| ITEM No. | RATING | | | REPLACEMENT DATA | | | | | NOTES |
|---|---|---|---|---|---|---|---|---|---|
| | PRI. | SEC. 1 | SEC. 2 | Stromberg-Carlson PART No. | Merit PART No. | Stancor PART No. | Thordarson PART No. | Triad PART No. | |
| T1 | 117V @ 1.25A | 175V @ .560A AC | 6.3V @ 3.8A | 161000-225 | | | | | |
| | SEC. 3 | SEC. 4 | SEC. 5 | | | | | | |
| | 55V @ .150A DC | | | | | | | | |

## TRANSFORMER (AUDIO OUTPUT)

| ITEM No. | IMPEDANCE | | REPLACEMENT DATA | | | | | NOTES |
|---|---|---|---|---|---|---|---|---|
| | PRI. | SEC. | Stromberg-Carlson PART No. | Merit PART No. | Stancor PART No. | Thordarson PART No. | Triad PART No. | |
| T2 | 6500Ω CT | 16Ω Tap @ 8Ω, 4Ω | 161000-172 | | | | | |
| T3 | 6500Ω CT | 16Ω Tap @ 8Ω, 4Ω | 161000-172 | | | | | |

## POWER RECTIFIERS

| ITEM No. | RATING | REPLACEMENT DATA | | | NOTES |
|---|---|---|---|---|---|
| | CURRENT (Measured) | Stromberg-Carlson PART No. | RCA PART No. | SARKES TARZIAN PART No. | |
| M10 | .140A | 162000-064 | 1N1764 | 40H | |
| M11 | .140A | 162000-064 | 1N1764 | 40H | |
| M12 | .140A | 162000-064 | 1N1764 | 40H | |
| M13 | .140A | 162000-064 | 1N1764 | 40H | |
| M14 | .15A | 162000-063 | 1N1763 | 40H | |

## MISCELLANEOUS

| ITEM No. | PART NAME | Stromberg-Carlson PART No. | NOTES |
|---|---|---|---|
| M15 | Circuit Breaker | 128000-040 | |

## WIRING DATA

General-use Unshielded Hook-up Wire ..... Use BELDEN No. 8530 (Solid) Available in Ten Colors
8524 (Stranded) Available in Ten Colors

Power Cord ..... Use BELDEN No. 1765-B (6 Ft. Length)
1725-K (7½ Ft. Length)

PHOTOFACT® Folder

**SYLVANIA MODELS**
**5T17E, T (Ch. 676-1)**

SYLVANIA MODELS
5T17E, T (Ch. 676-1)

SYLVANIA MODELS
5T17E, T (Ch. 676-1)

| | |
|---|---|
| TRADE NAME | Sylvania Models 5T17E, 5T17T (Ch. 676-1) |
| MANUFACTURER | Sylvania Home Electronics, Div. of Sylvania Electric Products, Inc., 700 Ellicott St., Batavia, N. Y. |
| TYPE SET | AC-DC Operated 5 Tube AM Receiver |
| POWER SUPPLY | 110 — 120 Volts AC, 60 Cycles RATING 26 Watts, .26 Amp. @117 Volts AC |
| TUNING RANGE—BROADCAST | 540 — 1600KC |

# ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading.

Suggested Alignment Tools: A1 thru A4..... GENERAL CEMENT #5097, 8727
WALSCO #2515
A5, A6..... GENERAL CEMENT #5004, 5009, 8195, 8274, 8275, 8607, 8728, 8987, 8988, 8989, 9291
WALSCO #2515, 2520, 2522, 2523, 2531, 2532, 2534, 2537, 2538

| | SIGNAL GENERATOR COUPLING | SIGNAL GENERATOR FREQUENCY | RADIO DIAL SETTING | OUTPUT METER | ADJUST | REMARKS |
|---|---|---|---|---|---|---|
| 1. | High side thru .1mfd to antenna stator lug (front section) of tuning gang. Low side to chassis. | 455KC (400% Mod.) | Tuning gang fully open. | Across voice coil. | A1, A2, A3, A4 | Adjust for maximum output. |
| 2. | Fashion loop of several turns of wire and radiate signal into loop of receiver. | 1650KC | " | " | A5 | " |
| 3. | " | 1400KC | 1400KC Signal. | " | A6 | Adjust for maximum output. |

**HOWARD W. SAMS & CO., INC.** Indianapolis 6, Indiana

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# PARTS LIST AND DESCRIPTIONS

## TUBES

| ITEM No. | USE | TYPE | ITEM No. | USE | TYPE |
|---|---|---|---|---|---|
| V1 | Converter | 12BE6 | V4 | Output | 50C5 |
| V2 | IF Amplifier | 12BA6 | V5 | Rectifier | 35W4 |
| V3 | Det.-AVC-AF Amp. | 12AV6 | | | |

## ELECTROLYTIC CAPACITORS

| ITEM No. | RATING CAP. | RATING VOLT. | REPLACEMENT DATA SYLVANIA PART No. | AEROVOX PART No. | CORNELL-DUBILIER PART No. | GENERAL ELECTRIC PART No. | MALLORY PART No. | PYRAMID PART No. | SPRAGUE PART No. |
|---|---|---|---|---|---|---|---|---|---|
| C1A | 80 | 150 | 161-2029 | PRS2240 | BBRD8515 | QT2-10 | TCD498 | TDLD-13 | TVA-2462 |
| B | 60 | 150 | | | | | | | |

## FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

| ITEM No. | RATING | REMARKS | REPLACEMENT DATA AEROVOX PART No. | CENTRALAB PART No. | CORNELL-DUBILIER PART No. | ELMENCO PART No. | MALLORY PART No. | SPRAGUE PART No. |
|---|---|---|---|---|---|---|---|---|
| C2 | 220 | | DI-220 | DD-221 | L10T22 | CCD-221 | B-312 | 10TS-T22 |
| C3 | .05 200V | | P288N-05 | DD-503 | CUB2S5 | 4DP-3-503 | GEM-415 | 2TM-S50 |
| C4 | 220 | | DI-220 | DD-221 | L10T22 | CCD-221 | B-322 | 10TS-T22 |
| C5 | .01 | | BPD-01 | DD-103 | BYA10S1 | CCD-103 | B-110 | 5HK-S10 |
| C6 | .01 | | BPD-01 | DD-103 | BYA10S1 | CCD-103 | B-110 | 5HK-S10 |
| C7 | .05 400V | | P488N-05 | DD-503 | CUB4S5 | 4DP-3-503 | GEM-415 | 4TM-S50 |
| C8 | .1 400V | | P488N-1 | DF-104 | CUB4P1 | 4DP-3-104 | GEM-401 | 4TM-P10 |

## CONTROLS

| ITEM No. | RATING RESISTANCE | RATING WATTS | REPLACEMENT DATA SYLVANIA PART No. | CENTRALAB PART No. | CLAROSTAT PART No. | CTS-IRC PART No. | MALLORY PART No. | INSTALLATION NOTES |
|---|---|---|---|---|---|---|---|---|
| R1A | 500K | 1/2 | 157-0070 | B-60-S | A47-500K-Z | Q13-133 | U48 | Volume |
| B | Shaft | | | Not Req. | FS-3 | Not Req. | Not Req. | |
| C | Switch | | | Not Req. | SWE-12 | 76-1 | US-26 | Power Off-On |

## RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

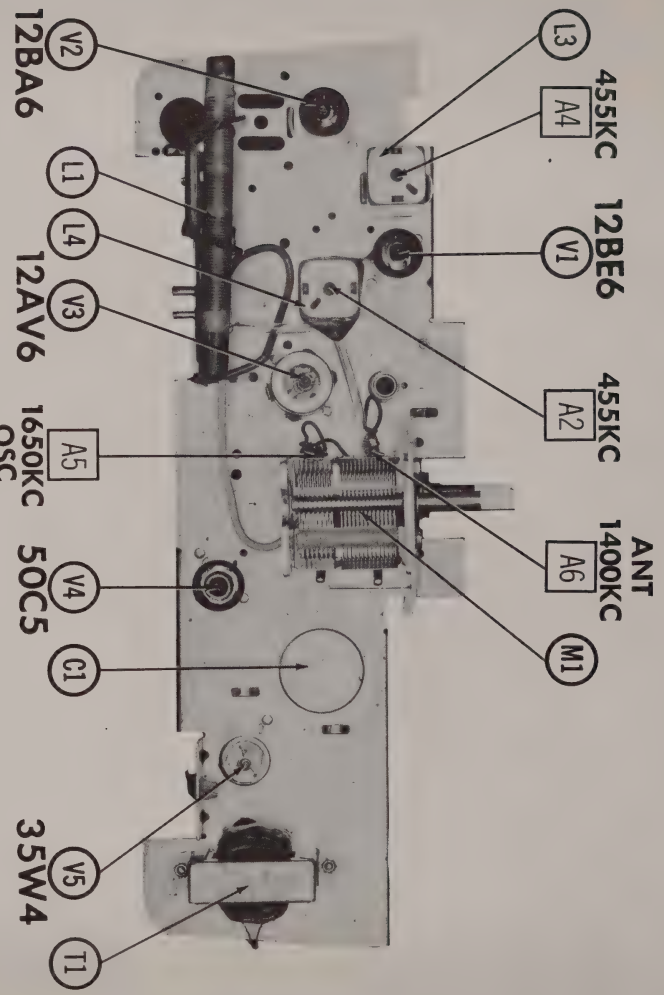
| ITEM No. | RATING | REPLACEMENT DATA IRC PART No. | WORKMAN TV PART No. | REMARKS |
|---|---|---|---|---|
| R2 | 2.2meg | | | |
| R3 | 22K | | | |
| R4 | 2.2meg | | | |
| R5 | 330Ω | | | |

| ITEM No. | RATING | REPLACEMENT DATA IRC PART No. | WORKMAN TV PART No. | REMARKS |
|---|---|---|---|---|
| R6 | 6.8meg | | | |
| R7 | 150Ω | | | |
| R8 | 1000Ω 1W | | | |

## COMPONENT COMBINATIONS

| ITEM No. | USE | DESCRIPTION | SYLVANIA PART No. | REPLACEMENT DATA |
|---|---|---|---|---|
| K1 | Audio Coupling | 250mmf, .005mfd, 250K, 470K | 190-0076 | Aerovox PA-112-2<br>Centralab PC-71<br>Sprague T-4 |

## CHASSIS—TOP VIEW



# PARTS LIST AND DESCRIPTIONS (Continued)

## COILS (RF-IF)

| ITEM No. | USE | REPLACEMENT DATA | | | | | NOTES |
|---|---|---|---|---|---|---|---|
| | | SYLVANIA PART No. | Merit PART No. | Miller PART No. | Stancor PART No. | Workman TV PART No. | |
| L1 | Loopstick | 581-0038 | BC-419 | 705-A | | T532 | |
| L2 | Osc. | 113-0098 | BC-393 | 69-OSC | RTC-8646 | T503 | |
| L3 | Input IF | 122-0125 | BC-352 | 12-C1 | RTC-8632 | T607 | |
| L4 | Output IF | 122-0125 | BC-353 | 12-C2 | RTC-8633 | T608 | |

## TRANSFORMER (AUDIO OUTPUT)

| ITEM No. | IMPEDANCE | | REPLACEMENT DATA | | | | | NOTES |
|---|---|---|---|---|---|---|---|---|
| | PRI. | SEC. | SYLVANIA PART No. | Merit PART No. | Stancor PART No. | Thordarson PART No. | Triad PART No. | |
| T1 | 3100Ω Tap@ 8% | 3-4Ω | 143-0116 | A-3031 | A-3336 | 24S89 | S-16X | |

## SPEAKER

| ITEM No. | TYPE | | | REPLACEMENT DATA | | NOTES |
|---|---|---|---|---|---|---|
| | SIZE | FIELD | V. C. IMP. | SYLVANIA PART No. | QUAM PART No. | |
| SP1 | 5" | PM | 3-4Ω | 539-0517 | 5A07 | |

## MISCELLANEOUS

| ITEM No. | PART NAME | SYLVANIA PART No. | NOTES |
|---|---|---|---|
| M1 | Tuning Cap. | 170-0068 | 2 Gang (Ant. 15—258mmf, Osc. 17—127mmf) |

## CABINETS & CABINET PARTS

(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

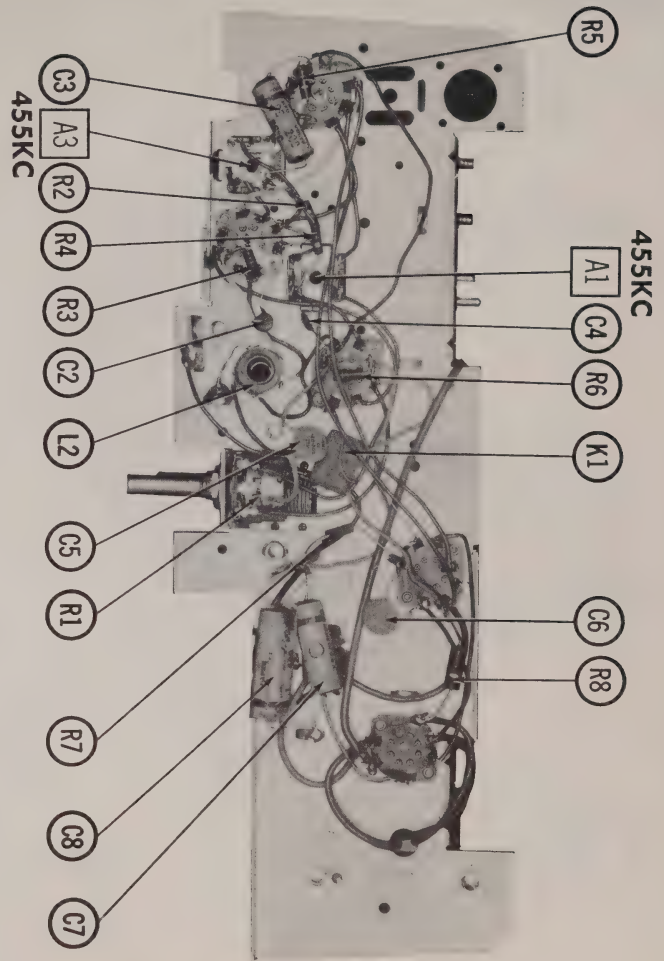
| NAME | PART NO. | DESCRIPTION |
|---|---|---|
| Knob | 740-0458 | Tuning, Volume, Model 5T17T |
| Knob | 740-0459 | Tuning, Volume, Model 5T17E |
| Dial | 740-0457 | Tuning, Indicator |
| Cabinet Back | 813-0169 | Model 5T17T |
| Cabinet Back | 813-0170 | Model 5T17E |
| Cabinet Front | 774-0033 | Model 5T17E |

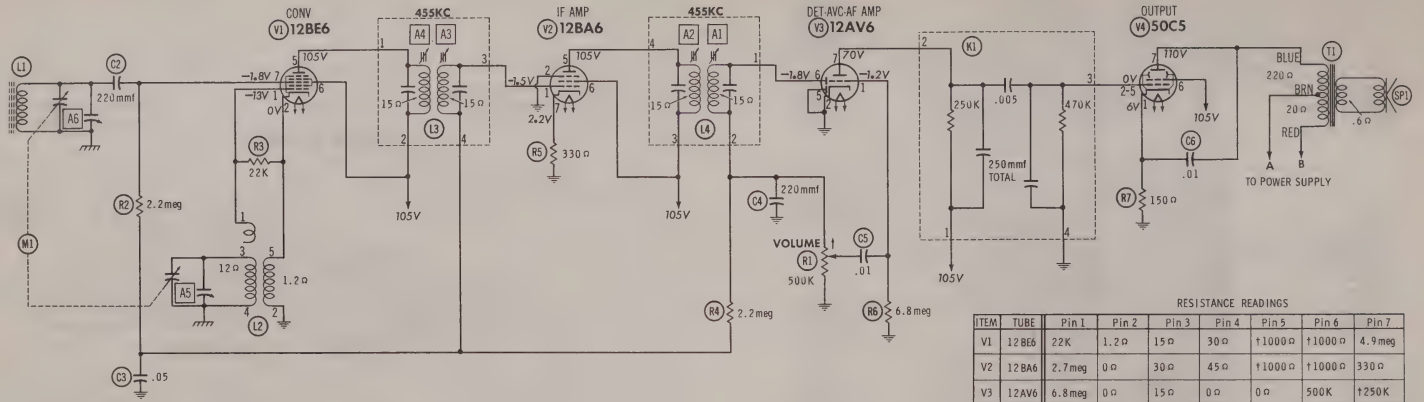
## WIRING DATA

General-use Unshielded Hook-up Wire ..... Use BELDEN No. 8530 (Solid) Available in Ten Colors
8524 (Stranded) Available in Ten Colors

Power Cord (Interlock Type) ..... Use BELDEN No. 8874

## CHASSIS—BOTTOM VIEW

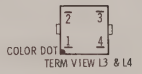


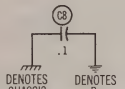



RESISTANCE READINGS

| ITEM | TUBE | Pin 1 | Pin 2 | Pin 3 | Pin 4 | Pin 5 | Pin 6 | Pin 7 |
|---|---|---|---|---|---|---|---|---|
| V1 | 12BE6 | 22K | 1.2Ω | 15Ω | 30Ω | †1000Ω | †1000Ω | 4.9meg |
| V2 | 12BA6 | 2.7meg | 0Ω | 30Ω | 45Ω | †1000Ω | †1000Ω | 330Ω |
| V3 | 12AV6 | 6.8meg | 0Ω | 15Ω | 0Ω | 0Ω | 500K | †250K |
| V4 | 50C5 | 150Ω | 470K | 100Ω | 45Ω | NC | †1000Ω | †240Ω |
| V5 | 35W4 | TP | TP | 100Ω | 140Ω | 140Ω | 145Ω | ¶ INF |

¶ THIS READING WILL VARY DEPENDING UPON THE CONDITION OF THE ELECTROLYTIC IN THE CIRCUIT.
† MEASURED FROM PIN 7 OF V5. NC NO CONNECTION TP TIE POINT



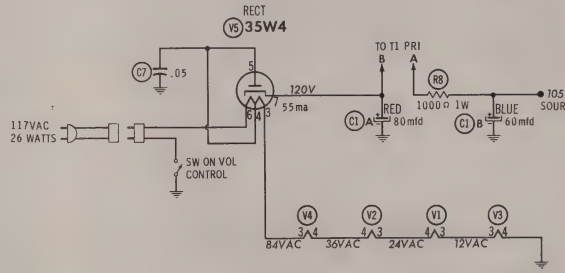




DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM

ARROWS ON CONTROLS INDICATE CLOCKWISE ROTATION (CONTROL VIEWED FROM SHAFT END)

NUMBERS ASSIGNED TO COILS, SWITCHES, PLUGS, SOCKETS, AND TRANSFORMERS ARE TO FACILITATE CIRCUIT TRACING OR COMPONENT REPLACEMENT AND MAY NOT NECESSARILY BE FOUND ON THE UNIT.

1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured with 1000 ohm per volt voltmeter.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common ground.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ±15% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.




A PHOTOFACT STANDARD NOTATION SCHEMATIC

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**SYLVANIA MODELS**
**5T17E, T (Ch. 676-1)**

PHOTOFACT® Folder

V-M
MODEL 1223

V-M
MODEL 1223

V-M
MODEL 1223

## GENERAL INFORMATION

The V-M Model 1223 is a four-speed stereo record changer. It will play a stack of ten 12-inch, twelve 10-inch, or fourteen 7-inch records, with a 45 rpm adaptor, in automatic sequence and will shut off automatically after the last record is played.

A velocity trip, requiring rapid tone arm acceleration to actuate the trip mechanism, is used.

Connect this changer to an outlet supplying 117 volts AC, 60 cycles only.

Manufactured By:

V-M Corporation,
Benton Harbor, Michigan

SET 557 FOLDER 14

**HOWARD W. SAMS & CO., INC.** Indianapolis 6, Indiana

The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of CQ467

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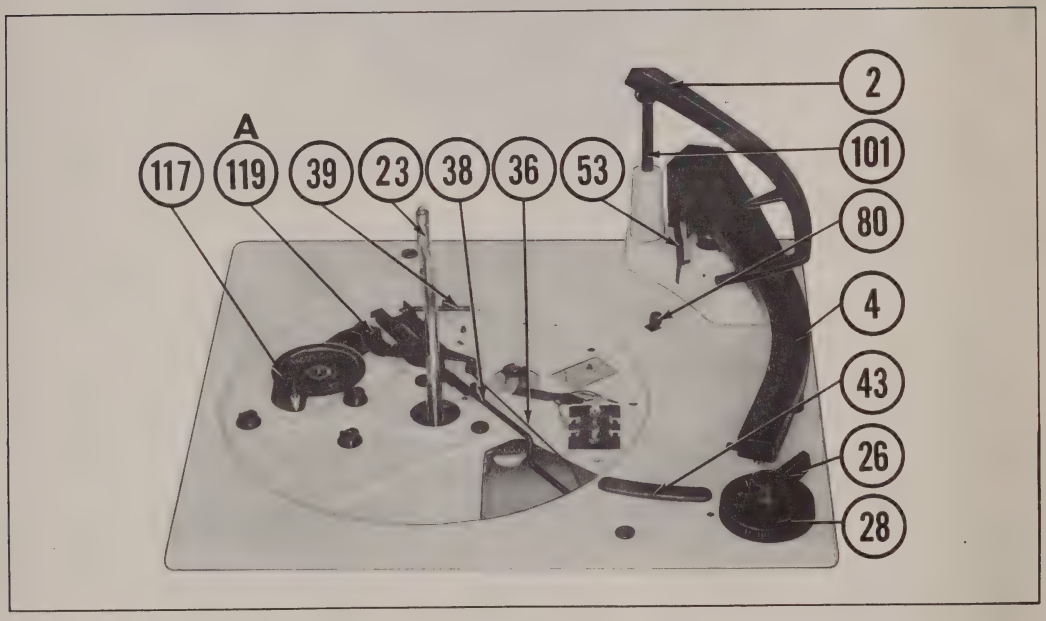



Fig. 1. Top View With Turntable Removed.

## OPERATING INSTRUCTIONS

### Loading

1. Pull record support arm (2) straight up until it clears the spindle and swing it to the right as far as it will go.

2. Place records on spindle so that bottom record rests on the spindle record shelf. Hold records in place, swing record support arm back toward the spindle, and lower it on top of records.

### Starting

1. Set speed control and stylus selector to the proper position for the records to be played.

2. Turn OFF-ON-REJ knob to "REJ" and release. The changer will automatically play and change each record, shutting itself off after the last record has been played.

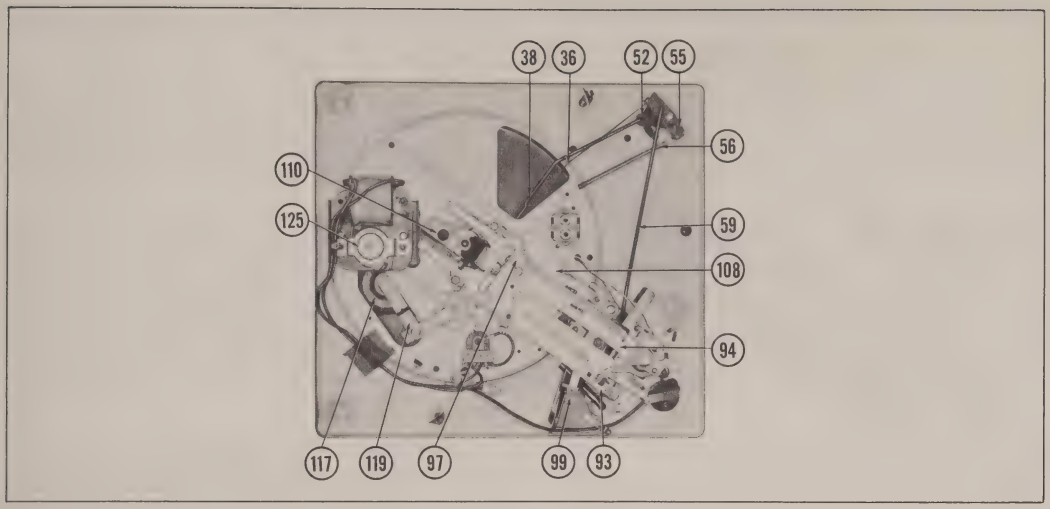



Fig. 2. Bottom View of Changer.

## Rejecting

To reject a record at any time while the changer is operating, turn OFF-ON-REJ knob to "REJ" and release.

## Unloading

Lift record support clear of spindle and swing it to the right as far as it will go. Using both hands with fingers under the edge of the bottom record, lift records straight up and off of spindle.

## Manual Operation

To play records manually - lift the record support arm clear of the center spindle and swing it to the right as far as it will go. Turn OFF-ON-REJ knob to "REJ" and release. The changer will cycle and the tone arm will set down on the rest post while the turntable continues to turn. The changer is now ready for manual operation. Select proper speed and stylus. Place a single record on the turntable, and set the tone arm gently on the record. When the record has been played the changer will cycle automatically, returning the tone arm to the rest post. The record can then be removed and another one placed on the turntable.

## CHANGE CYCLE

Observe the change cycle operation while manually rotating the turntable. The following description can then be readily followed, and the function of each part more easily understood.

This changer has a velocity trip mechanism. The change cycle is started by the faster inward motion of the tone arm when the needle enters the trip grooves at the end of a record. Only records having fast finishing grooves will operate this trip.

The tone arm (4) and finger and shaft assembly (87) are connected so that they move in unison. As the tone arm nears the end of a record, finger and shaft assembly (87) pushes trip link (93), thus engaging and pivoting trip lever (109). As trip lever (109) pivots, pawl lever (106) pivots with it and carries the trip pawl toward the turntable hub. While a record is playing the small motions of the trip pawl are not sufficient to cycle the mechanism because, on each revolution of the turntable, the wiping contact by the hub projection moves the trip pawl back.

When the needle enters the lead out groove, the trip pawl is moved far enough to definitely engage the projection on the turntable hub. The contact between the trip pawl and the turntable hub projection gives the necessary push required to engage the teeth on gear assembly (108) with the teeth on the turntable hub causing gear assembly (108) to rotate. This action starts the lateral travel of slide assembly (94). Slide assem-

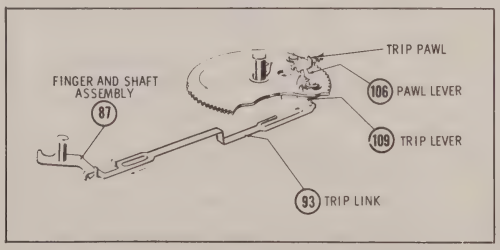



Fig. 3. Trip Mechanism Parts.

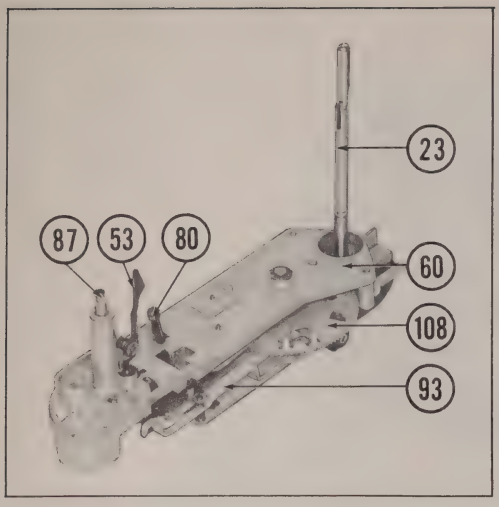



Fig. 4. Top View of Cycling Mechanism.

bly (94) is moved toward the rear by an eccentric mounted pin on gear assembly (108). This pin rides in the cross slot in slide assembly (94).

As the slide assembly begins to move, lift pin (17) rides up the inclined surface on the rear of slide assembly (94), raising the tone arm. At the same time, finger and shaft assembly (87) is pushed upward by lift pin spring (90), causing the two formed dimples in finger and shaft assembly (87) to engage the two holes in locator and bushing assembly (68). This action controls the movement of the tone arm during the change cycle.

Slide assembly (94) continues to move away from the spindle until the tab formed on the rear of the

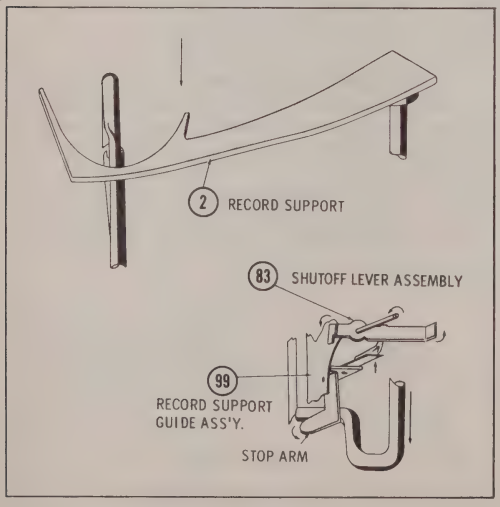



Fig. 5. Shutoff Mechanism Parts.

slide assembly pushes against the locator and bushing assembly (68), causing the tone arm to move out over the rest post.

A tab on the front of slide assembly (94) now comes in contact with the ejector bracket assembly (110), causing it to push spindle push rod (103) upward. This action causes the record pusher, in the spindle assembly, to drop the next record to the turntable.

Simultaneously, the trip pawl on top of main gear assembly (108) contacts and rides along the curved finger of retard assembly (84). After leaving the finger of retard assembly (84), the trip lever assembly comes in contact with the trip link guide rivet. This action moves the pawl into the trip position again; however, before the change cycle is completed the trip pawl is reset by a tab located near the cross slot in slide assembly (94).

At this time, the cam surface of the bracket on top of main gear assembly (108) moves reset lever (78) into its mid position (10" set down), where reset lever (78) is held by 12" selector (53). During this time slide assembly (94) continues to the rear and then starts forward.

If 7" records are being changed, rubber bumper (76) and 7" setdown lever (80) are free to move upward. This action raises reset lever (78) to the upper position (7" set down).

If 10" records are being changed, the 7" lever cannot rise, because rubber bumper (76) will contact edge of the 10" record. Consequently, reset lever (78) remains in the midposition (10" set down) as orginally placed by the camming action of the bracket on top of gear assembly (108).

When a 12" record drops to the turntable the record strikes the 12" record selector (53) and pivots it toward the rear of the changer. This action disengages the end of reset lever (78) from the edge of 12" record selector (53) and permits reset lever (78) to drop into the recess at the bottom of 12" record selector (53). Reset lever (78) then engages the bottom step of locator and bushing assembly (68), positioning the tone arm for 12" set down.

As slide assembly (94) continues forward, the tab on the rear of the slide moves clear of locator and bushing assembly (68) and finger and shaft assembly (87), which are still locked together. This action permits return spring (67) to move the tone arm inward until one of the three set down steps in locator and bushing assembly (68) strikes reset lever (78), stopping the inward travel of the tone arm directly above the point of landing. The tone arm is then lowered to the lead in groove of the record as lift pin (17) rides down the incline on the rear of slide assembly (94). As pressure is released from lift pin spring (90), finger and shaft assembly (87) and locator and bushing assembly (86) separate, permitting the tone arm to track freely across the record.

After the record has played and the mechanism trips, the preceding sequence of cycling and playing of records is again followed until only the last record of the stack remains on the spindle shelf.

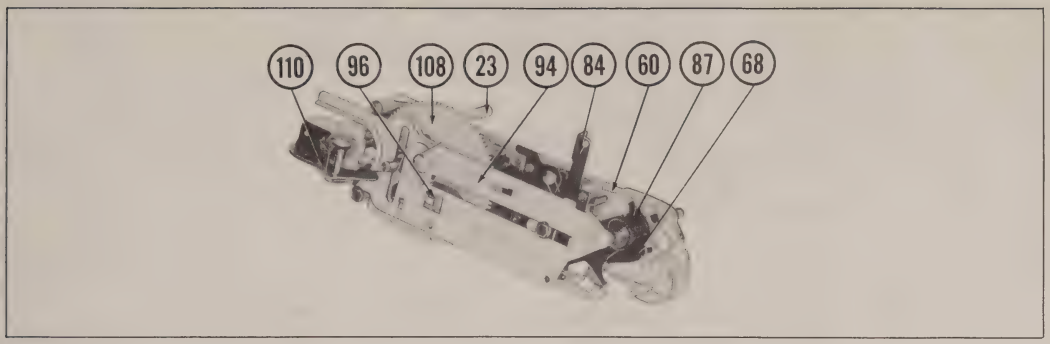



Fig. 6. Bottom View of Cycling Mechanism.

As the last record of the stack drops to the turntable, record support (2) drops below the shelf on spindle assembly (23) and the lower end of record support shaft (101) contacts the stop arm on record support guide assembly (99). The stop arm in turn applies pressure to shut-off lever (83). At this moment, cycling slide (94) is in its outermost position (away from the spindle), and the end of shut-off lever (83) is forced against escape lever (94A), preventing shut-off lever (83) from lowering further.

As the cycling slide returns to the out-of-cycle position, the end of shut-off lever (83) slides off escape lever (94A), permitting the end to extend down through the slot in the cycling slide. By this time, locator and bushing assembly (68), has rotated too far to be blocked by shutoff lever (83), and the tone arm is permitted to land on the record.

After the last record has played, the mechanism again goes into cycle. When slide assembly (94) has reached its outermost position, the force applied to shut-off lever (83) from record support shaft (101) causes the end of shut-off lever (83) to extend through the slot in slide assembly (94). The other end of shut-off lever (83) raises and prevents locator and bushing assembly (68) from rotating. This action positions the tone arm directly over tone arm rest post (30).

As slide assembly (94) moves back toward the spindle, trip link (93) pushes control shaft assembly (65), actuating AC switch (64) and shutting off the power. As slide assembly (94) returns to out-of-cycle position, lift pin (17) rides down the inclined surface of the slide, lowering the tone arm to the rest post (30).

In manual play, when the record support is raised and rotated to the extreme right, it releases the pressure placed on shift lever (61) by the shift lever spring. When changer cycles, shift lever (61) is free to drop down far enough to keep locator and bushing assembly (68) from turning; thus, each time the changer cycles, the tone arm will return to the rest post (as in automatic shut-off) but the motor will be left running.



## LUBRICATION

Additional lubrication should not be required for the life of the changer. However, if the changer has had extreme usage, or if parts are replaced, lubricate as follows:

Apply Andok "B" or Texaco Sta-Put to:

1. Edges of all slots in slide assembly (94).
2. Outer edges of tines on forked end of slide assembly (94).
3. Lift pin cam surface on slide assembly (94).
4. Lower surface of locator and bushing assembly (68).
5. Inner surface of tab on rear of slide assembly (94).

Apply one drop of light mineral oil to:

1. Finger and shaft assembly (87).
2. Push rod (103).
3. Top and bottom motor bearings.

## ADJUSTMENTS

### Needle Setdown ( Refer to Fig. 8)

1. Place either one 7-inch or one 10-inch record on the turntable.

2. Move the tone arm, by hand, to the center of the record.

3. Cycle the changer by rotating the turntable by hand, in a clockwise direction, until the tone arm has moved over the record and has begun to lower.

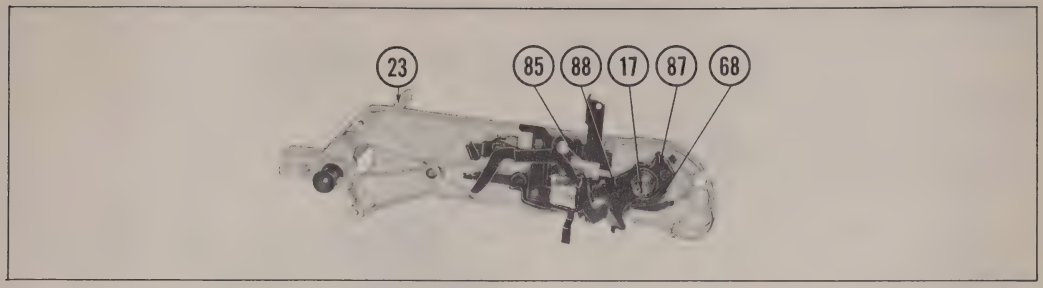



Fig. 7. Bottom View of Cycling Mechanism With Slide and Cam Gear Removed.

4. Stop rotating the turntable when the needle is about 1/2-inch above the record.

5. Raise the tone arm and turn eccentric set-down screw (21A) until the needle is positioned directly above the center of the lead-in grooves of the record.

6. Cycle changer automatically and check the needle landing point.

## Tone Arm Height ( Refer to Fig. 8)

The tone arm height is adjusted by means of lift screw (8). To raise the tone arm height, turn this screw counterclockwise. To lower the tone arm, turn clockwise. Adjustments should be made so that the tone arm lifts 1/4-inch above a 1 1/8 inch stack of records.

## Needle Pressure ( Refer to Fig. 8)

Lift adjusting spring (9) from the calibrated position (grooves in tone arm) and move to a higher numbered position for less needle pressure or to a lower numbered position for more needle pressure. The needle pressure should be checked with a gram scale and set for 5 to 7 grams.

## Motor Care

To correct uneven speed (wow), stalling or stoppage of the turntable, clean the drive surfaces marked "X" in Figure 9. To expose these drive surfaces, remove "C" washer (3) from the spindle and lift the turntable straight up and off the spindle. Use a small amount of carbon tetrachloride on a clean cloth and wipe all drive surfaces clean. Caution: Do not soak parts in carbon tetrachloride.

When replacing the turntable, lift the record guide (located inside the top end of the spindle) up to permit the turntable to pass over the spindle.

## Idler Wheel Height

To adjust idler wheel height, place speed selector knob in 33 RPM position. Turn idler height screw (119A) until edge of idler wheel is centered on 33 rpm step of motor drive pulley (second step from top).

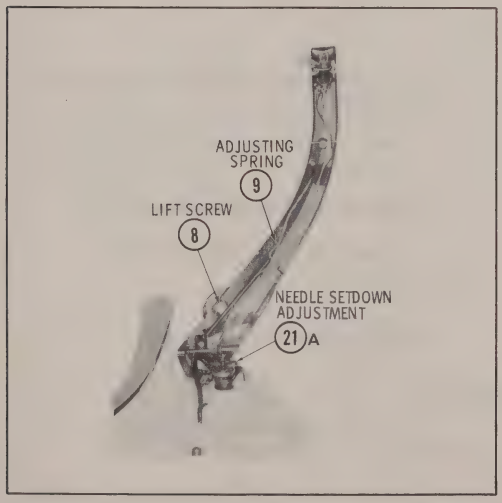



Fig. 8. Tone Arm Adjustment Points.

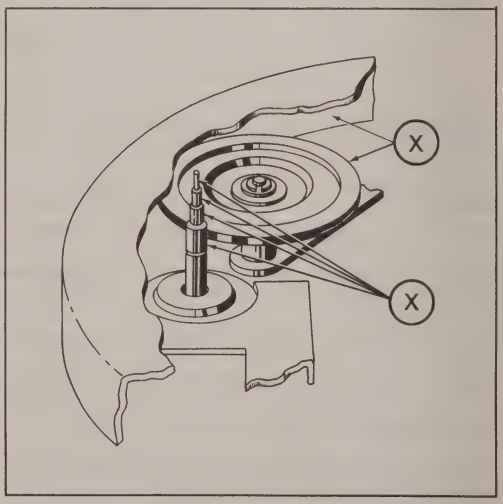
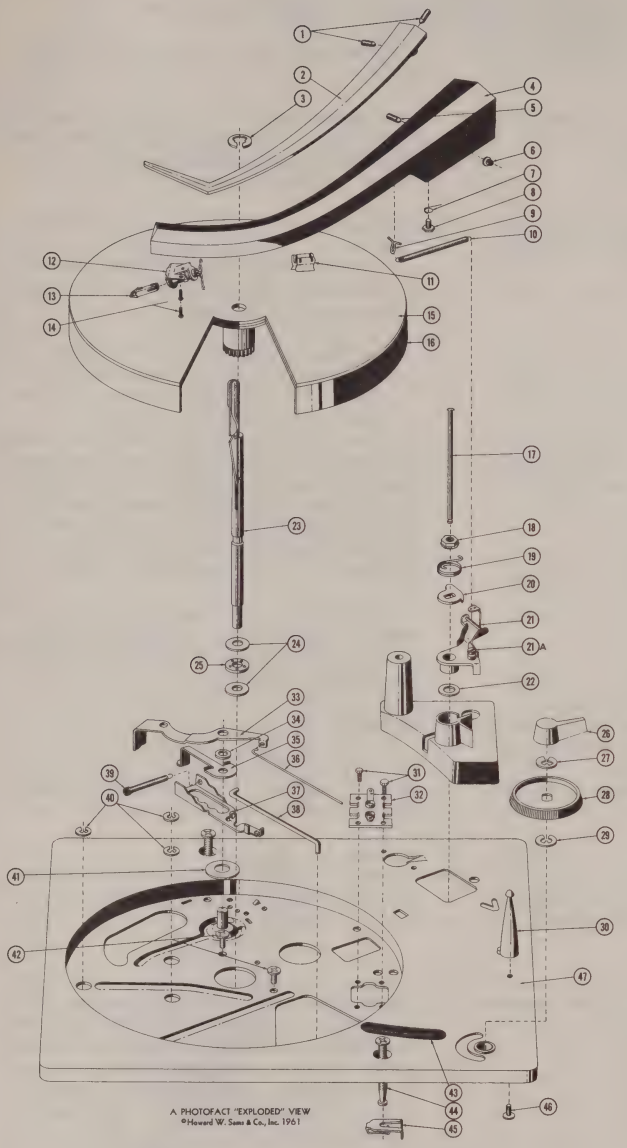



Fig. 9. Motor Drive Surfaces.

## TROUBLE CHART

| Symptom | Cause | Remedy |
|---|---|---|
| Turntable does not revolve when control is turned to "On" position. | 1. No current at motor. | (a) Check that current is reaching AC leads of changer.<br><br>(b) Check that switch is closing.<br><br>(c) Check wiring and soldered terminals in the changer. |
| | 2. Motor defective. | Remove turntable to allow motor to operate without load. If current is reaching motor and drive spindle does not rotate, the motor is defective. Repair or replace. |
| | 3. Motor idler wheel not engaging turntable wheel. | If drive spindle is turning but turntable is not:<br><br>(a) Check motor idler assembly to determine if it is free to contact the drive spindle and turntable rim.<br><br>(b) Wipe off inside rim of turntable (16) to remove dust, or if oily, clean the turntable rim and rubber tire of the idler wheel with naphtha or alcohol. |
| Changer does not cycle when the control knob is turned to the "Rej." position. | 1. The manual reject not actuating the trip. | (a) Turn control knob (26) to the reject position; hold and see that control shaft assembly (65) has moved trip link (93) to the rear. This should actuate the trip pawl on gear assembly (108) which will bring the spur on the trip pawl in contact with the gear on the turntable hub.<br><br>(b) Check for binding of pawl lever (106), trip lever assembly (109) and the trip pawl. If binding occurs, clean out all foreign matter and check for freedom. |
| | 2. Broken or dislocated slide detent spring (97). | Replace. |
| Control knob cannot be turned to "On" position. | 1. Machine shut off during cycle. | Turn the turntable clockwise, by hand, until control knob (26) is free. |
| | 2. Bent trip link (93). | Replace. |
| Tone arm strikes records on spindle when it raises, or tone arm rest when it moves out. | 1. Tone arm height not adjusted properly. | (See instructions for adjusting tone arm height under "Adjustments".) |
| Turntable speed too slow (refer to exploded view). | 1. Binding in turntable bearing. | Check the turntable bearing for freedom. Hold the motor idler wheel out of engagement with the turntable and spin the turntable, by hand, to see if it turns readily and coasts for a long time. If binding occurs, remove turntable, clean off foreign matter, and lubricate with light mineral oil. |
| | 2. Line voltage too low. | The line voltage should not be less than 105 volts or the turntable may be too slow. |
| Turntable stalls or slows down during cycle; refer to exploded view. | 1. Motor idler not engaging turntable. | (See "Turntable Does Not Revolve When Control Knob is Turned to 'On' Position".) |

(CONTINUED ON PAGE 10)




## MECHANICAL PARTS LIST

| Ref. No. | Part No. | Description |
|---|---|---|
| 1 | 14603 | Set Screw |
| 2 | *23534-BG | Record Support Assembly (Complete) (Brown) |
| 3 | 21762 | "C" Washer |
| 4 | *7488-BG | Tone Arm Shell (Brown) |
| 5 | 4923 | Pivot Screw |
| 6 | 4922 | Pivot Button |
| 7 | 7634 | Lock Spring |
| 8 | 7635 | Lift Screw |
| 9 | 6965 | Adjusting Spring |
| 10 | 6924 | Hinge Spring |
| 11 | 6963 | Tone Arm Clip |
| 12 | 18801-18 | Cartridge Holder and Lead Ass' |
| 13 | 18615-C | Needle Unit |
| 14 | 21404 | Cartridge Screws |
| 15 | *14747-C | Turntable Cover (Brown) |
| 16 | *24436-A | Turntable Assembly |
| 17 | 4327 | Lift Pin |
| 18 | 14498 | Keps Nut |
| 19 | 4937 | Safety Spring |
| 20 | 4339 | Safety Plate |
| 21 | 4072 | Hinge Arm Assembly |
| 21A | | Set Down Adj. Screw (Part of Item 21) |
| 22 | 2952 | Thrust Washer |
| 23 | 6049 | Spindle Assembly |
| 24 | 6877 | Bearing Washer |
| 25 | 6876 | Turntable Bearing |
| 26 | *24470-A46 | Control Knob (Off-On-Reject) |
| 27 | 1651 | "C" Washer |
| 28 | *24462-A46 | Control Knob (Speed) |
| 29 | 2594 | "C" Washer |
| 30 | *5573-A22 | Rest Post (Maroon) |
| 31 | 1917 | Screws |
| 32 | 18339 | Phono Socket, Dual |
| 33 | 24423 | Shift Yoke |
| 34 | 24417 | Spacer |
| 35 | 24897 | Slide Guide |
| 36 | 24413 | Retraction Rod |
| 37 | 24898 | Shift Slide |
| 38 | 24414 | Control Rod |
| 39 | 24422 | Slide Spring |
| 40 | 5022 | "C" Washer |
| 41 | 24416 | Washer |
| 42 | 9823 | Screws |
| 43 | *14826-B | Needle Protector (Brown) |
| 44 | 6168-A | Mounting Bolts |
| 45 | 6244 | Mtg. Bolt Clips |
| 46 | 2916 | Screw |
| 47 | *24846-A | Baseplate Assembly |
| 48 | 1897 | Lug |
| 49 | 1917 | Screw |
| 50 | 24419 | Screw, Stud |
| 51 | 2909 | Control Washer |
| 52 | 24432 | Control Lever and Shaft Ass'y (Motor) |
| 53 | 2957 | 12" Record Selector |
| 54 | 14951 | 12" Selector Spring |
| 55 | 24437 | Control Lever Ass'y (Off-On-Reject) |
| 56 | 7113 | Reject Spring |
| 57 | 1588 | "C" Washer |
| 58 | 1652 | "C" Washer |
| 59 | 5550 | Shut-off Rod |
| 60 | 15451 | Frame Assembly |
| 61 | 16807 | Shift Lever |
| 62 | 16808 | Pin, Shift Lever |

* Specify Color

Fig. 10. Exploded View of Parts Above Baseplate.

## MECHANICAL PARTS LIST (CON'T)

| Ref. No. | Part No. | Description |
|---|---|---|
| 63 | 6713 | Screw (Shift Lever) |
| 64 | 21338 | AC Switch |
| 65 | 2284 | Control Shaft Ass'y |
| 66 | 24073 | Screw |
| 67 | 24805 | Return Spring |
| 68 | 6405 | Locator and Bushing Assembly |
| 69 | 5828 | Retaining Ring |
| 70 | 21339 | Fibre Insulating Strip |
| 71 | 2573 | Switch Cover |
| 72 | 4212 | Retainer |
| 73 | 5022 | "C" Washer |
| 74 | 24742 | Safety Spring |
| 75 | 6874 | Push Rod |
| 76 | 2580 | Rubber Bumper |
| 77 | 2925 | Spring, Reset Lever |
| 78 | 20886 | Reset Lever |
| 79 | 2579 | Spring, 7" Lever |
| 80 | 2581 | 7" Lever |
| 81 | 9849 | Screws |
| 82 | 9663 | Spring |
| 83 | 6966 | Shut-Off Lever Ass'y |
| 84 | 19153 | Retard Assembly |
| 85 | 16817 | Retard Arm Spring |
| 86 | 6713 | Screw |
| 87 | 15450 | Finger and Shaft Ass'y |
| 88 | 9557 | Retard Lever |
| 89 | 9510 | Anti-Skate Spring |
| 90 | 9509 | Lift Pin Spring |
| 91 | 1588 | "C" Washer |
| 92 | 1588 | "C" Washer |
| 93 | 4656 | Trip Link |
| 94 | 24801 | Slide Assembly |
| 95 | 9849 | Screw |
| 96 | 2585 | Spring (Escape Lever) |
| 97 | 24020 | Slide Detent Spring |
| 98 | 9849 | Screw |
| 99 | 18462 | Record Support Guide Ass'y |
| 100 | 4857 | Screw |
| 101 | 6897 | Record Support Shaft |
| 102 | 1897 | Lug |
| 103 | 4857 | Screw |
| 104 | 1588 | "C" Washer |
| 105 | 19872 | Spring |
| 106 | 5339 | Pawl Lever |
| 107 | 5338 | Spring, Pawl Lever |
| 108 | 19873 | Gear Assembly |
| 109 | 2569 | Trip Lever Ass'y |
| 110 | 14420 | Ejector Bracket Ass'y |
| 111 | 9823 | Screw |
| 112 | 1719 | "C" Washer |
| 113 | 9762 | Spring Washer |
| 114 | 3489 | Grommets |
| 115 | 24411 | "E" Ring |
| 116 | 3974 | Washer, Fibre |
| 117 | 24428 | Idler Wheel |
| 118 | 3974 | Washer, Fibre |
| 119 | 24433 | Idler Arm and Shaft Ass'y |
| 119A | | Idler Height Screw (Part of Item 119) |
| 120 | 24421 | Spring, Idler Tension |
| 121 | 6884 | Spindle Ball |
| 122 | 23548 | Insulator |
| 123 | 19800 | Amplok Housing |
| 124 | 8686 | Screw |
| 125 | 25461 | Motor Assembly |
| 126 | 6955 | Set Screw |
| 127 | 2274 | Washer |
| 128 | 4856 | Screw |

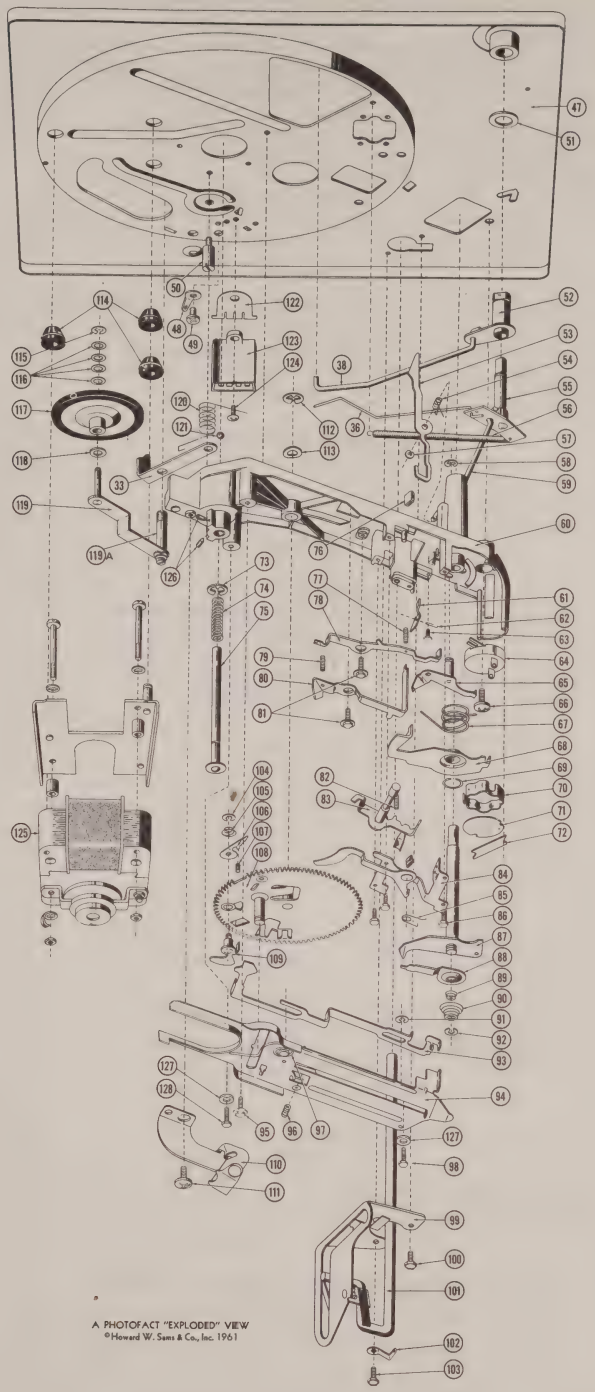



Fig. 11. Exploded View of Parts Below Baseplate.

| Symptom | Cause | Remedy |
|---|---|---|
| | 2. Binding in drive mechanism. | Hold idler away from turntable, or remove idler wheel. Cycle machine by turning turntable slowly by hand. The main gear should turn freely for the complete revolution without binding at any point.<br><br>If binding occurs, check for foreign matter in the gear teeth, a bent gear bearing, or bent spindle bushing. Straighten or replace bent parts. Clean and lubricate bearing surfaces. |
| | 3. Binding between pickup arm lift pin (17) and lift pin cam surface on slide and cam assembly. | Lift pin should ride freely on cam surface without binding. |
| | 4. Motor weak. | When everything checks all right, but the changer still stalls in cycle, the motor may be weak. |
| | 5. Grease on idler wheel. | Wipe off idler wheel rubber tire, inner rim of turntable and motor pulley with naphtha or alcohol. |
| | 6. Idler wheel tension spring (120) weak. | Replace spring (120). |
| Changer continues to cycle. | Reject mechanism binding. | (a) Make certain trip link (93) is not frozen in the reject position.<br><br>(b) Make certain control shaft assembly (65) is not binding and that it actuates trip link (93) when the changer control knob (26) is turned to reject.<br><br>(c) Check for binding of trip pawl, trip lever (109) and pawl lever (106); these must be free to turn easily. Any grease on the gear in the area of the trip pawl could retard the smooth action of the trip pawl.<br><br>(d) Check the changer control linkage, (59) and (65). |
| Noise during playing of record. | 1. Motor rumble. | If a low-pitched rumbling sound comes from the loud speaker while a record is being played, check motor grommets to be sure the motor is freely suspended on them. The motor lead wires should have slack to allow the motor to float. Motor rumble may also come from an unbalanced motor rotor; in this case, replace the motor. Also make sure idler wheel (117) and idler linkage bearing are free and lubricated. |
| | 2. Defective turntable bearing (25). | Defective turntable bearings can cause rumble. Check for foreign matter in the bearing; also check for rough surface on washer. Clean sleeve bearing, and washers. Lubricate with light mineral oil. |

| Symptom | | Remedy |
|---|---|---|
| | 3. Defective idler wheel (117). | A rapid thumping sound while the motor is running may indicate a flat spot on the idler wheel (117). If this condition does not clear up after ten minutes of running time, remove the turntable and check the rubber tire on the idler. If the surface of the rubber tire is not smooth and even, replace the part. Should the bearing of the idler wheel show signs of excessive wear or be extremely wobbly, the idler wheel should be replaced. |
| | 4. Turntable scrapes. | If a scraping sound occurs as the turntable revolves, check:<br>(a) Turntable warped, causing outer rim to rise and fall.<br>(b) Idler wheel adjusted too high. (See "Adjustments"). |
| | 5. Squeaks. | Squeaking sound as changer operates indicates lack of oil. Lubricate points indicated under "Lubrication". |
| Changer does not shut off after last record has been played. | 1. Record support (2) binding. | The record support must drop below the offset shoulder of the spindle or the changer will not shut off. |
| | 2. Lever assembly (83) binding. | Clean out dirt and make sure lever operates smoothly. |
| | 3. Shut-off bracket binding. | Check bracket and if bent, straighten. |
| | 4. Shut off lever not engaging locator. | Adjust tab on slide that rotates the locator and trip finger when unit is cycling. |
| Rough tone arm motion. | 1. Horizontal defects. | (a) Check tone arm return locator (68) for tightness.<br>(b) Check that tone arm return spring (67) is not weak and is hooked up properly. |
| | 2. Vertical defects. | (a) Lift pin (17) binding; clean out dirt and lubricate.<br>(b) Slide and cam (94) binds; check bearing points--clean and lubricate.<br>(c) Burrs in main slot in slide and cam (94) --remove with fine file.<br>(d) Ejector lever on ejector bracket assembly (110) binding. Straighten, remove burrs, and lubricate.<br>(e) Tone arm shaft and sleeve binding; clean and lubricate. |
| Noise during change cycle. | 1. Tines on the forked end of the slide and cam assembly (94) bent. | Replace. |
| | 2. Lack of lubrication. Grinding noise. | Lubricate ejector lever (110) where it contacts lower end of push rod (103). |

## TROUBLE CHART (Con't)

| Symptom | Cause | Remedy |
|---|---|---|
| Shuts off when last record drops. | 1. Shut-off bracket (99) bent. | Straighten or replace. |
| | 2. Record support bent. | Bend record support (2) until parallel with baseplate. |
| | 3. Loose shut-off lever assembly (83). | Tighten. |
| | 4. Escape lever spring (96) missing. | Replace. |
| Record does not drop when changer cycles. | 1. Spindle push rod (103) broken, or bent. | Replace push rod (103). |
| | 2. Record finger in spindle not moving far enough to eject a record. | The record finger should move forward until it has reached a point flush with, or a maximum of .010" beyond the spindle body (23).<br><br>To insure that the record finger is all the way forward, push rod (103) should be raised high enough by the ejector lever to slightly compress the pusher spring. (See "Turntable Stalls During Cycle".) If the spring is compressed and the record finger does not move far enough forward to eject a record, the spindle (23) should be replaced. If a record is not pushed completely off the ledge it may hang on the spindle monentarily, then drop on the tone arm when it moves in over the turntable. |
| | 3. Check that ball bearing (121) is not missing. | Replace. |
| | 4. Loose ejector bracket (110). | Tighten screw (111). |
| | 5. Loose spindle (23). | Tighten set screw (124). |
| Two records drop at once. | 1. Hole in record too large. | Check the diameter of the hole in the record. An oversize hole will cause two records to drop at once. |
| | 2. Spindle guide not fully down. | If the spindle guide is not all the way down, more than one record may drop at a time.<br><br>(a) Check the guide to be sure it is free and does not bind at any point. Clean out foreign matter or straighten if necessary. Do not oil.<br><br>(b) When records are placed on the spindle, be sure the guide is all the way down. The guide will normally raise as a record is being dropped, but it should return to place immediately, by gravity. |
| | 3. Slight play in spindle (23). | Tighten spindle set screw (124). |
| Record hits tone arm. | 1. Record finger not moving far enough forward to eject record. | (See "Record Does Not Drop When Changer Cycles".) |

| Symptom | Cause | Remedy |
|---|---|---|
| | 2. Record finger extending beyond outside diameter of spindle. | Cycle changer, by hand, until pusher shaft is at the top of its travel. Using new record as a gauge, pass it over the spindle to see if it binds at any point. File off high points on record finger with a fine file, until record will pass freely over spindle. |
| | 3. Tone arm not adjusted properly. | (See "Adjustments".) |
| Needle does not set down on 10" record in proper position. | 1. Tone arm not adjusted properly. | (See "Adjustments".) |
| | 2. Tone arm shaft and sleeve (87) binding. | File off burrs and rough surfaces. Polish and lubricate shaft. |
| | 3. 7" lever (80) and 12" record selector (53) not operating properly. | Insure that the proper operation and reset of the 7" lever (80) and 12" record selector (53) is not being interfered with. (See "Change Cycle"). |
| | 4. Needle bent. | Replace with new needle. |
| | 5. 12" selector spring (54) broken. | Replace. |
| | 6. Bent locator and bushing ass'y (68). | Straighten or replace. |
| | 7. Bent finger and shaft assembly (87). | Straighten or replace. |
| | 8. Rubber bumper (76) missing. | Replace. |
| Needle does not set down on 12" record in proper position. | 1. Diameter of 12" record undersize. | The set-down position of the needle for 12" records is determined by the edge of the record striking the 12" record selector (53). If a 12" record has a diameter of less than the standard size of 11-7/8" plus or minus 1/32", it may fail to depress the 12" record selector far enough. |
| | 2. Enlarged center hole in record. | An enlarged center hole might fail to set the 12" record selector because it could produce the same effect as a small record. |
| | 3. Tone arm not adjusted properly. | (See "Adjustments".) |
| | 4. Binding of finger and shaft assembly (87). | Clean and polish shaft and lubricate with light oil. |
| | 5. Reset lever spring (77) broken. | Replace spring (77). |
| | 6. 12" record selector spring (54) loose or broken. | Replace spring (54). |
| | 7. 12" record selector (53) binding. | The 12" record selector must be free to operate smoothly. Clean out dirt and straighten if bent, or replace. |

| Symptom | Cause | Remedy |
|---|---|---|
| | 8. Bent locator and bushing assembly (68). | Straighten or replace. |
| | 9. Bent finger and shaft assembly (87). | Straighten or replace. |
| Needle does not set down on 7" record properly. | 1. 7" set-down lever spring (79) broken or weak. | Replace. |
| | 2. Tone arm not adjusted properly. | (See "Adjustments".) |
| | 3. 7" set-down lever screw (81) loose. | Tighten. |
| | 4. 7" set-down lever (80) hitting frame or baseplate where it goes through hole in frame. | Straighten or replace. |
| | 5. Reset lever (78) bent. | Replace. |
| | 6. 7" set-down lever (80) does not fall into opening in main gear. | Replace. |
| | 7. Bent locator and bushing assembly (68). | Straighten or replace. |
| | 8. Bent finger and shaft assembly (87). | Straighten or replace. |
| Changer does not cycle when record has been played. | 1. No finishing trip groove on record. | Check record for trip groove in center of record. Some old records and home recordings do not have this trip groove. |
| | 2. Needle jumps out of grooves in record. | (a) Check trip pressure; the lateral pressure should not exceed 3 grams, (if pressure is excessive, see "Changer Trips Before Needle Reaches End of Record".)<br><br>(b) The record may be defective; the finishing groove is often too shallow. Check with a record that is known to be good.<br><br>(c) The needle point may be damaged or affected by an excessive accumulation of dust, lint, etc; check needle pressure as described under "Adjustments".)<br><br>(d) There may be binding in the finger and shaft assembly (87) or between it and locator and bushing assembly (68). (See "Needle Does Not Track Across Record Properly".) |
| | 3. Trip pawl binding on gear face. | The trip pawl must be free to move forward and engage the boss on the turntable hub when the trip lever releases it. Check for burrs or foreign matter lodged between the trip pawl and gear assembly (108). Do not oil as this might collect dirt and gum up the pawl. |

| Symptom | Cause | Remedy |
|---|---|---|
| | 4. Bent finger and shaft assembly (87). | Straighten or replace. |
| | 5. Trip link (93) bent. | Straighten or replace. |
| Changer trips before needle reaches end of record. | 1. Hole in record too large. | If the hole in the record is too large, the groove may turn eccentric with the spindle and cause premature tripping. |
| | 2. Binding of trip link (93). | With the trip link released, check the trip link for freedom of motion. It should be free to move without binding. |
| Needle does not track across record properly. | 1. Needle maybe clogged by accumulation of lint, dirt, etc, or worn. | (a) Clean foreign material from around needle.<br><br>(b) Check needle to see if the tip is bent or broken. Replace if necessary. |
| | 2. Finger and shaft ass'y (87) does not disengage from locator and bushing assembly (68) when cycle is completed. | There should be a 1/32" gap between finger and shaft assembly (87) and locator and bushing assembly (68) when machine is not in cycle. |
| | 3. Check the bearing in the tone arm post for binding. | (a) Check locator and bushing assembly (68) and finger and shaft assembly (87) for binding (See 2 above). |
| | 4. Pickup leads too tight. | Give the pickup leads enough slack to allow the tone arm to move freely across the record. |
| Needle jumps off record edge after setting down. | Tab on gear ass'y (108) bent out causing retard ass'y (84) to move retard lever (88) back. | Straighten tab on gear assembly (108) or replace gear assembly. |

PHOTOFACT® Folder

# ZENITH
# MODEL FPS-50L

ZENITH
MODEL FPS-50L

ZENITH
MODEL FPS-50L

| | |
|---|---|
| TRADE NAME | Zenith Model FPS-50L |
| MANUFACTURER | Zenith Radio Corp., 6001 Dickens Ave., Chicago 39, Illinois |
| TYPE SET | AC Operated 3 Tube Stereo Phono Amplifier With 4 Speed Automatic Record Changer |
| POWER SUPPLY | 110 – 120 Volts AC, 60 Cycles RATING 33 Watts, .35 Amp. @ 117 Volts AC (Less Motor) |

FOR SERVICE INFORMATION ON RECORD CHANGER PART #169-119 – SEE SIMILAR V-M 1201 – PHOTOFACT SET 436 FOLDER 18 OR RECORD CHANGER MANUAL RC-12

SET 557 FOLDER 15

**HOWARD W. SAMS & CO., INC.** Indianapolis 6, Indiana

The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of KT804

the particular type of replacement part listed. Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. © 1961 Howard W. Sams & Co., Inc., Indianapolis 6, Indiana. Printed in U.S. of America

# PARTS LIST AND DESCRIPTIONS

## TUBES

| ITEM No. | USE | GENERAL ELECTRIC • RAYTHEON • SYLVANIA • TYPE |
|---|---|---|
| V1 | Channel 1 AF Amp. - Channel 2 AF Amp. | 12AX7A |
| V2 | Channel 1 Output | 50C5 |
| V3 | Channel 2 Output | 50C5 |

## ELECTROLYTIC CAPACITORS

| ITEM No. | RATING CAP. | RATING VOLT. | REPLACEMENT DATA ZENITH PART No. | AEROVOX PART No. | CORNELL-DUBILIER PART No. | GENERAL ELECTRIC PART No. | MALLORY PART No. | PYRAMID PART No. | SPRAGUE PART No. |
|---|---|---|---|---|---|---|---|---|---|
| C1A | 150 | 150 | WC14690 | PRS3825 | BBRT84215 | QT3-6 | WT-455 | TDLT-7 | TVA-3563 |
| B | 20 | 150 | | | | | | | |

## FIXED CAPACITORS

**Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.**

| ITEM No. | RATING | REMARKS | REPLACEMENT DATA AEROVOX PART No. | CENTRALAB PART No. | CORNELL-DUBILIER PART No. | ELMENCO PART No. | MALLORY PART No. | SPRAGUE PART No. |
|---|---|---|---|---|---|---|---|---|
| C2 | .047 400V | | P488N-047 | DD-503 | CUB4S47 | 4DP-3-473 | GEM-4147 | 4TM-S47 |
| C3 | .01 | | BPD-01 | DD-103 | BYA10S1 | CCD-103 | B-110 | 5HK-S10 |
| C4 | .06 200V | | P288N-06 | | CUB6S6 | 6DP-3-603 | GEM-416 | 6TM-S60 |
| C5 | .01 | | BPD-01 | DD-103 | BYA10S1 | CCD-103 | B-110 | 5HK-S10 |
| C6 | .06 200V | | P288N-06 | | CUB6S6 | 6DP-3-603 | GEM-416 | 6TM-S60 |
| C7 | .047 400V | | P488N-047 | DD-503 | CUB4S47 | 4DP-3-473 | GEM-4147 | 4TM-S47 |

## CONTROLS

| ITEM No. | RATING RESISTANCE | RATING WATTS | REPLACEMENT DATA ZENITH PART No. | CENTRALAB PART No. | CLAROSTAT PART No. | CTS-IRC PART No. | MALLORY PART No. | INSTALLATION NOTES |
|---|---|---|---|---|---|---|---|---|
| R1A | 5meg | 1/2 | WC13229 | B-88 | AD47-5meg-S | | FB56A | Volume, Left Channel |
| B | 5meg | 1/2 | | SR-88 | Not Req. | | RU56A | Volume, Right Channel |
| C | Shaft | | | Not Req. | KSS-3 | | CS3500 | |
| R2A | 50K | 1/2 | WC14642 | B-32 | AD47-50K-S | | FB54A | Tone, Left Channel |
| B | 50K | 1/2 | | SR-32 | Not Req. | | RU54A | Tone, Right Channel |
| C | Shaft | | | Not Req. | KSS-3 | | CS3500 | |
| R3A | 1meg | 1/2 | WC13501 | B-69 | A47-1meg-S | Q11-137 | U54 | Balance |
| B | Shaft | | | Not Req. | KSS-3 | Not Req. | Not Req. | |

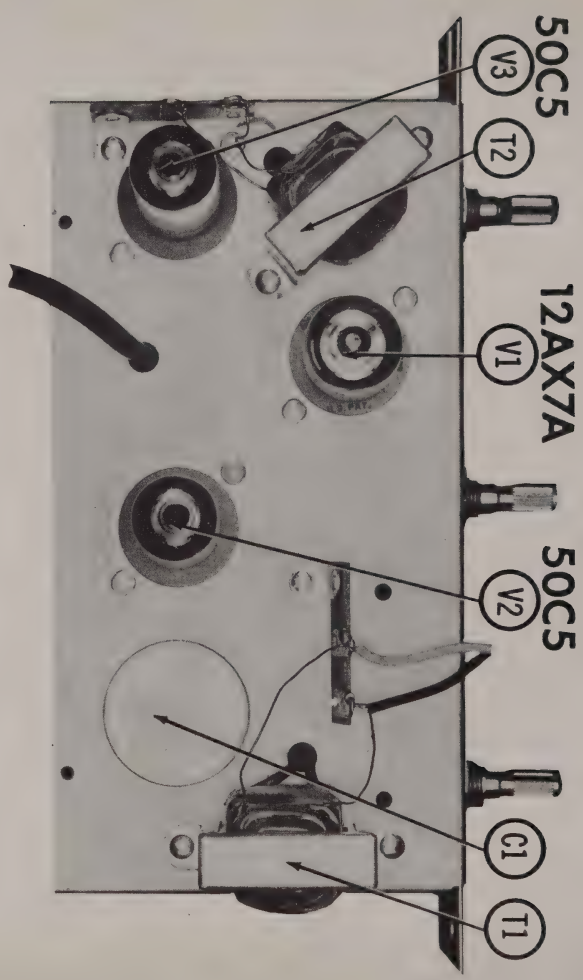
## RESISTORS

**All wattages 1/2 watt, or less, unless otherwise listed.**

| ITEM No. | RATING | REPLACEMENT DATA IRC PART No. | WORKMAN TV PART No. | REMARKS |
|---|---|---|---|---|
| R4 | 68K | | | Note 1 |
| R5 | 270K | | | (220K)* |
| R6 | 270Ω | | | |
| R7 | 47K | | | |
| R8 | 150Ω | | | |
| R9 | 1200Ω 1W | | | |
| R10 | 68K | | | Note 1 |
| R11 | 270K | | | (220K)* |
| R12 | 270Ω | | | |
| R13 | 47K | | | |
| R14 | 150Ω | | | |
| R15 | 33Ω 1W | | | |
| R16 | 47Ω 3W | PW3-47 | 3W-SQ-47 | |
| R17 | 47Ω | | | |

* Alternate Value.
Note 1. Not used in some versions.

# CHASSIS—TOP VIEW



# PARTS LIST AND DESCRIPTIONS (Continued)

## TRANSFORMER (AUDIO OUTPUT)

| ITEM No. | IMPEDANCE | | REPLACEMENT DATA | | | | | NOTES |
|---|---|---|---|---|---|---|---|---|
| | PRI. | SEC. | ZENITH PART No. | Merit PART No. | Stancor PART No. | Thordarson PART No. | Triad PART No. | |
| T1 | 3400Ω | 3-4Ω | WC13706 | A-3025 | A-3332 | 24S48 | S-41Z | |
| T2 | 3400Ω | 3-4Ω | WC13706 | A-3025 | A-3332 | 24S48 | S-41Z | |

## SPEAKER

| ITEM No. | TYPE | | | REPLACEMENT DATA | | NOTES |
|---|---|---|---|---|---|---|
| | SIZE | FIELD | V. C. IMP. | ZENITH PART No. | QUAM PART No. | |
| SP1 | 6" | PM | 3-4Ω | WC14694 | 6A1 | |
| SP2 | 6" | PM | 3-4Ω | WC14694 | 6A1 | |

## POWER RECTIFIERS

| ITEM No. | RATING | REPLACEMENT DATA | | | NOTES |
|---|---|---|---|---|---|
| | CURRENT (Measured) | ZENITH PART No. | RCA PART No. | SARKES TARZIAN PART No. | |
| M1 | .090A | WC14027 | 1N1763 | 40H | |

## PHONO CARTRIDGE & NEEDLES

*NEEDLE LISTINGS SHOWN ARE FOR RESPECTIVE REPLACEMENT CARTRIDGES ONLY.

| ITEM No. | REPLACEMENT DATA | | | | | | | | NOTES |
|---|---|---|---|---|---|---|---|---|---|
| | ZENITH PART No. | | ASTATIC PART No. | | ELECTRO-VOICE PART No. | | SONOTONE PART No. | | |
| | CARTRIDGE | NEEDLE* | CARTRIDGE | NEEDLE* | CARTRIDGE | NEEDLE* | CARTRIDGE | NEEDLE* | |
| M2 | 142-103 | Not Req. | 13T | Not Req. | 13 | Not Req. | 10T2-S | Not Req. | |

## CABINETS & CABINET PARTS

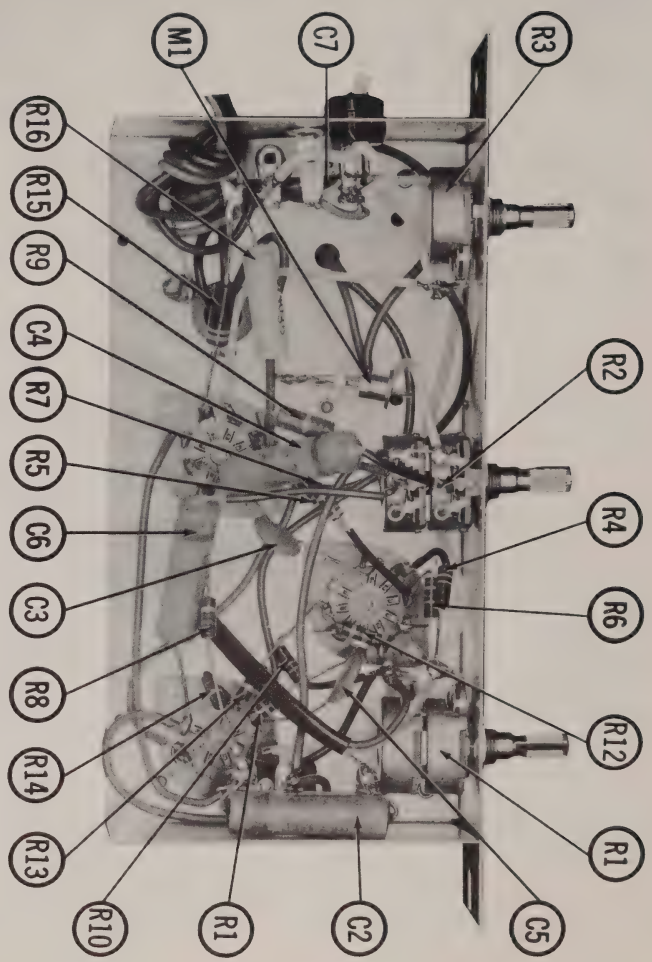
**(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)**

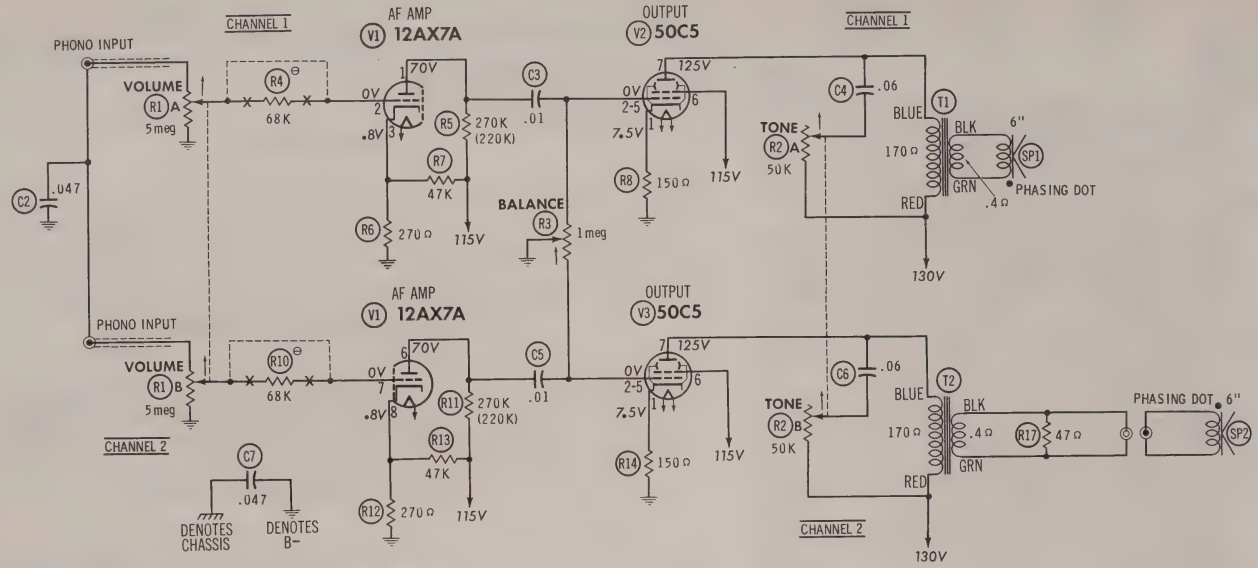
| NAME | PART NO. | DESCRIPTION |
|---|---|---|
| Knob | WC12126-3E | |
| Cabinet | WC14696 | |
| Handle | WC13448-8B | |

## WIRING DATA

| | | |
|---|---|---|
| General-use Unshielded Hook-up Wire | Use BELDEN No. | 8530 (Solid) Available in Ten Colors<br>8524 (Stranded) Available in Ten Colors |
| Power Cord | Use BELDEN No. | 1765-B (6 Ft. Length)<br>1725-K (7½ Ft. Length) |
| Low-Loss Shielded Lead (Interconnecting) | Use BELDEN No. | 8401 |
| Phono Pick-up Arm Cable | Use BELDEN No. | 8430 (Two Conductor - Twisted) |

## CHASSIS—BOTTOM VIEW

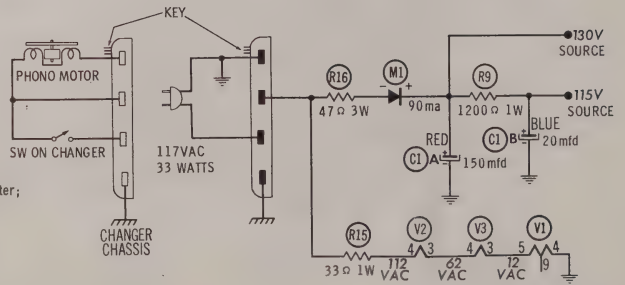





RESISTANCE READINGS

| ITEM | TUBE | Pin 1 | Pin 2 | Pin 3 | Pin 4 | Pin 5 | Pin 6 | Pin 7 | Pin 8 | Pin 9 |
|---|---|---|---|---|---|---|---|---|---|---|
| V1 | 12AX7A | †270K | 68K | 270Ω | 0Ω | 15Ω | †270K | 68K | 270Ω | NC |
| V2 | 50C5 | 150Ω | 500K | 85Ω | 150Ω | 500K | †1200Ω | †170Ω | | |
| V3 | 50C5 | 150Ω | 500K | 15Ω | 85Ω | 500K | †1200Ω | †170Ω | | |

† MEASURED FROM OUTPUT OF M1. NC NO CONNECTION




⊖ SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM

ARROWS ON CONTROLS INDICATE CLOCKWISE ROTATION (CONTROL VIEWED FROM SHAFT END)

A PHOTOFACT STANDARD NOTATION SCHEMATIC

1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured with 1000 ohm per volt voltmeter.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common ground.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance of component values makes possible a variation of ± 15% in voltage and resistance readings.
6. All controls at minimum, proper output load connected.

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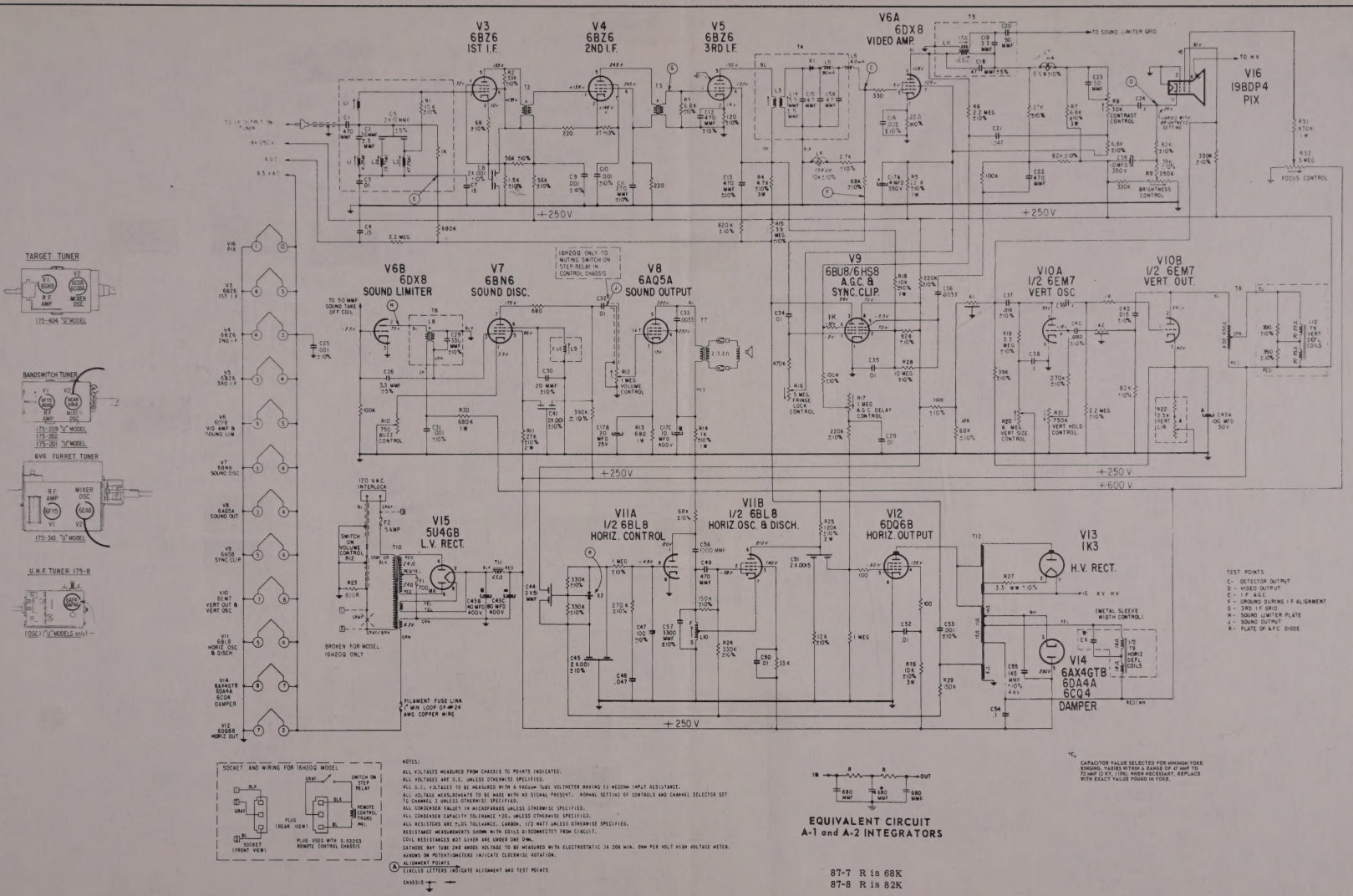
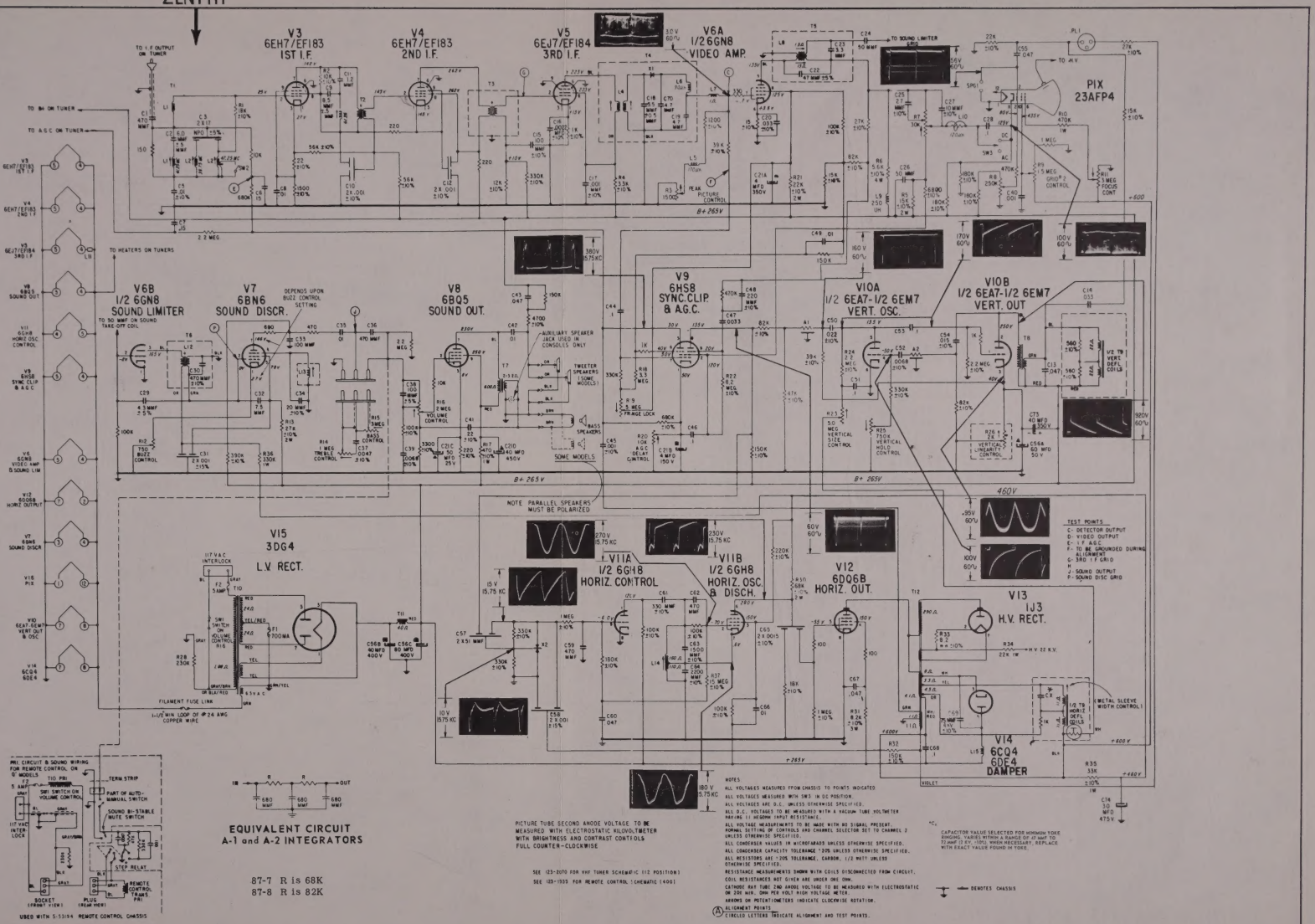
**ZENITH**
**MODEL FPS-50L**


V3 6BZ6 1ST I.F.
V4 6BZ6 2ND I.F.
V5 6BZ6 3RD I.F.
V6A 6DX8 VIDEO AMP.
V16 19BDP4 PIX
V6B 6DX8 SOUND LIMITER
V7 6BN6 SOUND DISC.
V8 6AQ5A SOUND OUTPUT
V9 6BU8/6HS8 A.G.C. & SYNC. CLIP.
V10A 1/2 6EM7 VERT OSC
V10B 1/2 6EM7 VERT OUT.
V11A 1/2 6BL8 HORIZ. CONTROL
V11B 1/2 6BL8 HORIZ. OSC. & DISCH.
V12 6DQ6B HORIZ. OUTPUT
V13 1K3 H.V. RECT.
V14 6AX4GTB 6DA4A 6CQ4 DAMPER
V15 5U4GB L.V. RECT.
+250 V
+600 V
TARGET TUNER
BANDSWITCH TUNER
GVG TURRET TUNER
U.H.F. TUNER 175-8
SOCKET AND WIRING FOR 16H20Q MODEL
EQUIVALENT CIRCUIT A-1 and A-2 INTEGRATORS
87-7 R is 68K
87-8 R is 82K

# ZENITH CHASSIS 16H20, Q, U

Schematic Diagram Courtesy of Zenith Radio Corporation


ZENITH
ZENITH
V3 6EH7/EF183 1ST I.F.
V4 6EH7/EF183 2ND I.F.
V5 6EJ7/EF184 3RD I.F.
V6A 1/2 6GN8 VIDEO AMP.
PIX 23AFP4
V6B 1/2 6GN8 SOUND LIMITER
V7 6BN6 SOUND DISCR.
V8 6BQ5 SOUND OUT.
V9 6HS8 SYNC. CLIP. & A.G.C.
V10A 1/2 6EA7-1/2 6EM7 VERT. OSC.
V10B 1/2 6EA7-1/2 6EM7 VERT. OUT
V11A 1/2 6GH8 HORIZ. CONTROL
V11B 1/2 6GH8 HORIZ. OSC. & DISCH.
V12 6DQ6B HORIZ. OUT.
V13 1J3 H.V. RECT.
V14 6CQ4 6DE4 DAMPER
V15 3DG4 L.V. RECT.
TO I.F. OUTPUT ON TUNER
TO B+ ON TUNER
TO A.G.C. ON TUNER
TO HEATERS ON TUNERS
TO SOUND LIMITER GRID
TO H.V.
B+ 265 V
B+ 265V
+600
+460
+170V
+100V
180V
460V
+99V
TEST POINTS
C- DETECTOR OUTPUT
D- VIDEO OUTPUT
E- I.F. AGC
F- TO BE GROUNDED DURING ALIGNMENT
G- 3RD I.F. GRID
H-
J- SOUND OUTPUT
K- SOUND DISC GRID
NOTE PARALLEL SPEAKERS MUST BE POLARIZED
DEPENDS UPON BUZZ CONTROL SETTING
AUXILIARY SPEAKER JACK USED IN CONSOLES ONLY
TWEETER SPEAKERS (SOME MODELS)
BASS SPEAKERS
SOME MODELS
VOLUME CONTROL
BASS CONTROL
TREBLE CONTROL
BUZZ CONTROL
117 V A.C. INTERLOCK
FILAMENT FUSE LINK
1-1/2" MIN. LOOP OF #24 AWG COPPER WIRE
EQUIVALENT CIRCUIT A-1 and A-2 INTEGRATORS
87-7 R is 68K
87-8 R is 82K
PIC CIRCUIT & SOUND WIRING FOR REMOTE CONTROL ON 'G' MODELS
TERM. STRIP
PART OF AUTO-MANUAL SWITCH
SWI SWITCH ON VOLUME CONTROL
SOUND BI-STABLE MUTE SWITCH
STEP RELAY
REMOTE CONTROL TRANS. PWR.
SOCKET (FRONT VIEW)
PLUG (REAR VIEW)
USED WITH 5-53194 REMOTE CONTROL CHASSIS
PICTURE TUBE SECOND ANODE VOLTAGE TO BE MEASURED WITH ELECTROSTATIC KILOVOLTMETER WITH BRIGHTNESS AND CONTRAST CONTROLS FULL COUNTER-CLOCKWISE
SEE 123-3070 FOR VHF TUNER SCHEMATIC (12 POSITION)
SEE 123-1935 FOR REMOTE CONTROL SCHEMATIC (400)
NOTES:
ALL VOLTAGES MEASURED FROM CHASSIS TO POINTS INDICATED.
ALL VOLTAGES MEASURED WITH SW3 IN DC POSITION.
ALL VOLTAGES ARE D.C. UNLESS OTHERWISE SPECIFIED.
ALL D.C. VOLTAGES TO BE MEASURED WITH A VACUUM TUBE VOLTMETER HAVING 11 MEGOHM INPUT RESISTANCE.
ALL VOLTAGE MEASUREMENTS TO BE MADE WITH NO SIGNAL PRESENT. NORMAL SETTING OF CONTROLS AND CHANNEL SELECTOR SET TO CHANNEL 2 UNLESS OTHERWISE SPECIFIED.
ALL CONDENSER VALUES IN MICROFARADS UNLESS OTHERWISE SPECIFIED.
ALL CONDENSER CAPACITY TOLERANCE ±20% UNLESS OTHERWISE SPECIFIED.
ALL RESISTORS ARE ±20% TOLERANCE, CARBON, 1/2 WATT UNLESS OTHERWISE SPECIFIED.
RESISTANCE MEASUREMENTS SHOWN WITH COILS DISCONNECTED FROM CIRCUIT.
COIL RESISTANCES NOT GIVEN ARE UNDER ONE OHM.
CATHODE RAY TUBE 2ND ANODE VOLTAGE TO BE MEASURED WITH ELECTROSTATIC OR 20K MIN. OHM PER VOLT HIGH VOLTAGE METER.
ARROWS ON POTENTIOMETERS INDICATE CLOCKWISE ROTATION.
ALIGNMENT POINTS
CIRCLED LETTERS INDICATE ALIGNMENT AND TEST POINTS.
*C: CAPACITOR VALUE SELECTED FOR MINIMUM YOKE RINGING (USUALLY WITHIN A RANGE OF 10 MMF TO 82 MMF). IF VALUE WHEN NECESSARY, REPLACE WITH EXACT VALUE FOUND IN TOKE.
DENOTES CHASSIS

ZENITH CHASSIS 16H28, Q, U

Schematic Diagram Courtesy of Zenith Radio Corporation

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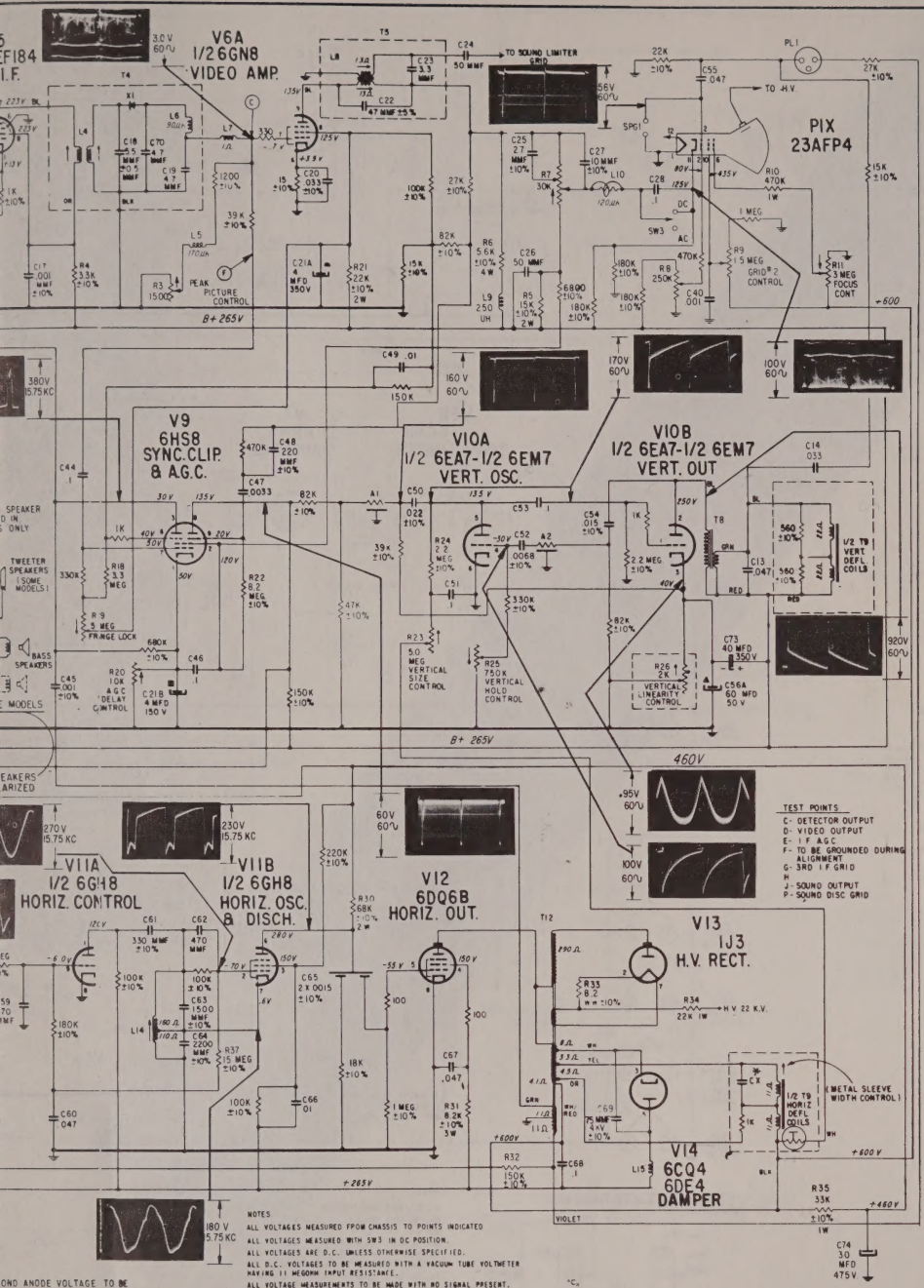
V6A
1/2 6GN8
VIDEO AMP.
PIX
23AFP4
V9
6HS8
SYNC. CLIP.
& A.G.C.
V10A
1/2 6EA7-1/2 6EM7
VERT. OSC.
V10B
1/2 6EA7-1/2 6EM7
VERT. OUT
V11A
1/2 6GH8
HORIZ. CONTROL
V11B
1/2 6GH8
HORIZ. OSC.
& DISCH.
V12
6DQ6B
HORIZ. OUT.
V13
1J3
H.V. RECT.
V14
6CQ4
6DE4
DAMPER
B+ 265V
460V
TEST POINTS
C- DETECTOR OUTPUT
D- VIDEO OUTPUT
E- I.F. AGC
F- TO BE GROUNDED DURING ALIGNMENT
G- 3RD I.F. GRID
H
J- SOUND OUTPUT
P- SOUND DISC GRID
NOTES
ALL VOLTAGES MEASURED FROM CHASSIS TO POINTS INDICATED
ALL VOLTAGES MEASURED WITH SW3 IN DC POSITION.
ALL VOLTAGES ARE D.C. UNLESS OTHERWISE SPECIFIED.
ALL D.C. VOLTAGES TO BE MEASURED WITH A VACUUM TUBE VOLTMETER HAVING 11 MEGOHM INPUT RESISTANCE.
ALL VOLTAGE MEASUREMENTS TO BE MADE WITH NO SIGNAL PRESENT. NORMAL SETTING OF CONTROLS AND CHANNEL SELECTOR SET TO CHANNEL 2 UNLESS OTHERWISE SPECIFIED.
ALL CONDENSER VALUES IN MICROFARADS UNLESS OTHERWISE SPECIFIED.
ALL CONDENSER CAPACITY TOLERANCE ±20% UNLESS OTHERWISE SPECIFIED.
ALL RESISTORS ARE ±20% TOLERANCE, CARBON, 1/2 WATT UNLESS OTHERWISE SPECIFIED.
RESISTANCE MEASUREMENTS SHOWN WITH COILS DISCONNECTED FROM CIRCUIT.
COIL RESISTANCES NOT GIVEN ARE UNDER ONE OHM.
CATHODE RAY TUBE 2ND ANODE VOLTAGE TO BE MEASURED WITH ELECTROSTATIC OR 20K MIN. OHM PER VOLT HIGH VOLTAGE METER.
ARROWS OR POTENTIOMETERS INDICATE CLOCKWISE ROTATION.
ALIGNMENT POINTS
CIRCLED LETTERS INDICATE ALIGNMENT AND TEST POINTS.
CAPACITOR VALUE SELECTED FOR MINIMUM YOKE RINGING. VARIES WITHIN A RANGE OF 47 MMF TO 72 MMF (2 KV, -10%). WHEN NECESSARY, REPLACE WITH EXACT VALUE FOUND IN YOKE.
DENOTES CHASSIS

Schematic Diagram Courtesy of Zenith Radio Corporation